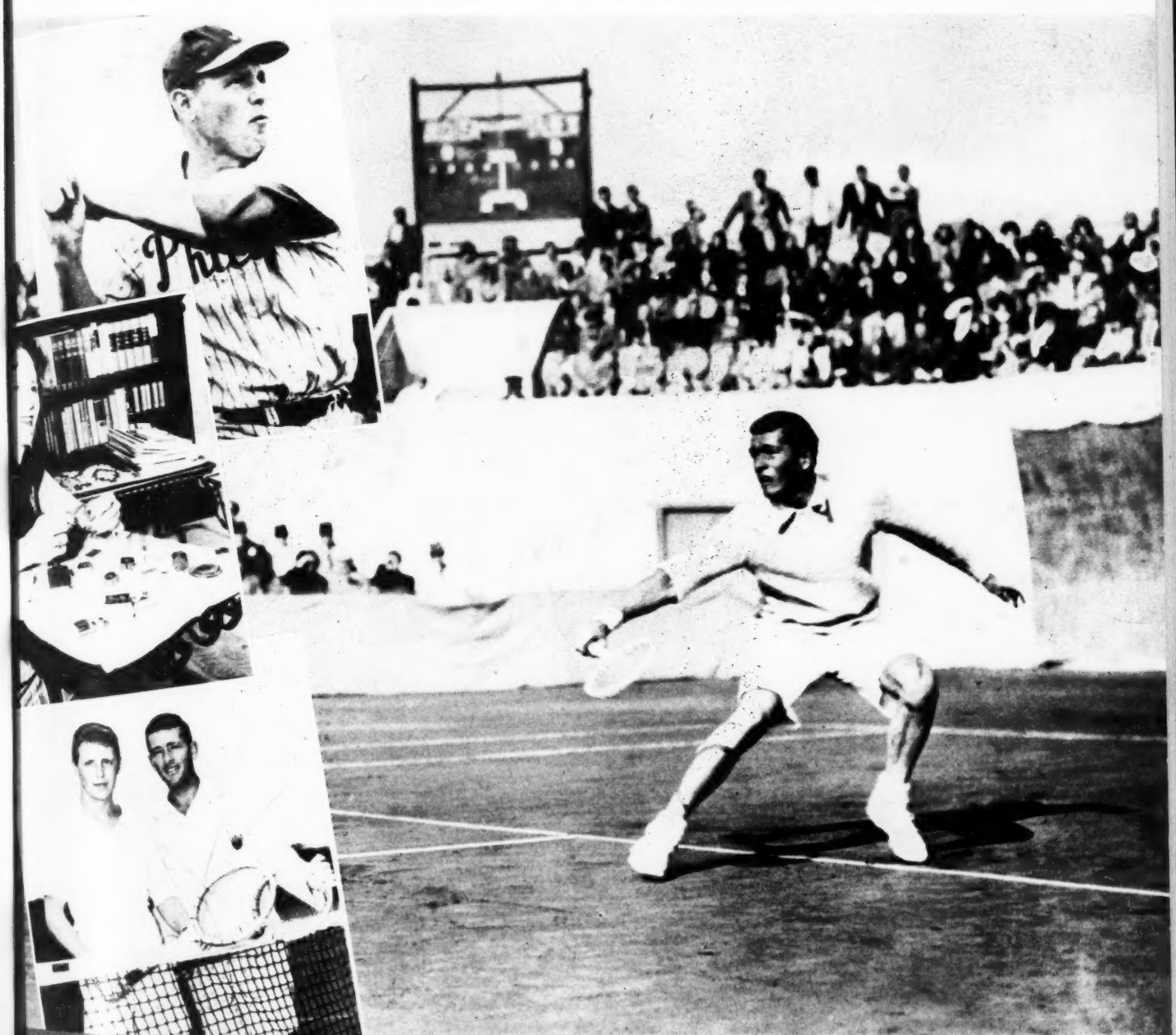
(This number is composed of two sections, of which this is Section 1)

The Journal

of the Michigan State Medical Society

Volume 53 | October, 1954 | Number 10



IAB TICS? Yes! But...They Can And Do Live Strenuous Lives.

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THE JOURNAL
of the Michigan State Medical Society

VOLUME 53 OCTOBER, 1954 NUMBER 10

Contributors to This Issue

JEROME W. CONN, M.D.

ROBERT C. MOEHLIG, M.D.

JOHN H. WARVEL, M.D.

THE FRONT COVER

The man returning the serve ball is Bill Talbert, a top flight player, former Davis Cup team member, who has been taking insulin for years.

The baseball player *(top left)* is Bill Nicholson, recently retired from the Big League. He played with the Phillies for years, and much of that time was a diabetic, controlled by diet and insulin.

The left center photograph shows Mrs. Claire Vernon Rider, Employment Director for the J. C. Penney Company, with her collection of pill boxes. She is also a well-known diabetic.

At the lower left are the two Davis Cup Stars, Bill Talbert and Ham Richardson, both of whom have demonstrated that diabetes should not prevent a strenuous life.

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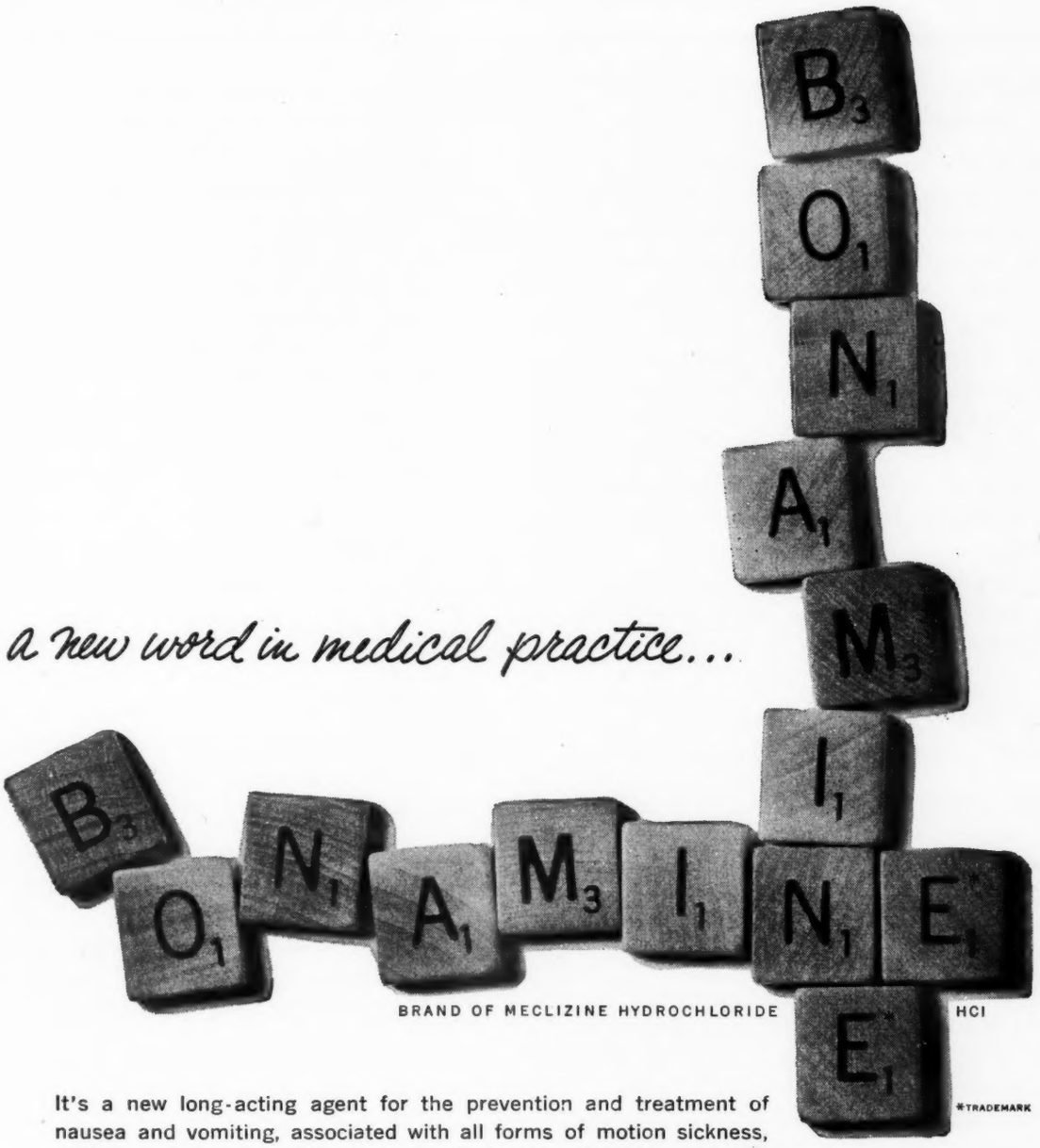

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The next scheduled examination (Part I), written examination and review of case histories, for all candidates will be held in various cities of the United States, Canada, and military centers outside the continental United States, on Friday, February 4, 1955.

Case abstracts numbering 20 are to be sent by the candidate to the secretary as soon as possible after receiving notification of eligibility to the Part I written examination. Candidates are reminded at this time that lists of hospital admissions must accompany new applications and requests for reopening.

For further information contact the Board secretary, Robert L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.

DOES THE AMA CONTROL THE SUPPLY OF DOCTORS IN THE UNITED STATES?

Long plagued with the idea that control of the M.D. supply in this country is its monopoly, the American Medical Association strongly refutes that idea in its fifth annual Medical Education Report.

A record ratio of one M.D. for every 730 persons in the United States has been reached during the past year. The graduation of the largest class of doctors of medicine in history, and the continued expansion of the nation's medical schools, gave this splendid result.

A total of 6,861 doctors were graduated during 1953-1954; this brings the nation's M.D. population to 220,100.

More good news is that the number of medical graduates is expected to rise more rapidly than the general population. The enrollment of 28,227 is the greatest number of students in medical education in the history of the United States.

The freshman class enrollment of 7,449 also is a record.

Ten new four-year medical schools are in the construction or planning stage and will be in operation within the next five or six years.

More than $76,000,000 was spent during 1953-1954 for new facilities, remodeling or completion of buildings for medical instruction.

Medical school budgets during the ensuing year will total more than $143,000,000!

And last but not least, 21,328 doctors of medicine did volunteer teaching—without pay—during the past year to aid in educating medical students throughout the nation.

Doctor, tell the above story to your patients, to your friend the newspaper editor, and to your local labor leaders. The AMA and the American Medical Education Foundation have done, and are doing, wonders in increasing the number of medical schools and the number of medical students. Criticisms to the contrary are now "old hat."

HIGHLIGHTS OF EXECUTIVE COMMITTEE OF THE COUNCIL

Meeting of August 18, 1954

Seventy-three items were presented to the Executive Committee of The Council at its August 18 meeting in Birmingham, held in the home of President-Elect R. H. Baker, M.D. Items of chief importance were:

- **Annual Conference on Aging,** sponsored by the University of Michigan. The Executive Committee approved cooperation with this 1955 Conference in Ann Arbor, provided the Michigan State Medical Society is included in the planning phase of the Conference.
- **Items for supplemental** Annual Report of The Council, including statement re polio vaccine, were discussed and approved for inclusion.
- **President L. W. Hull, M.D.,** Detroit, reported that AMA President-Elect Elmer Hess, M.D., Erie, Pennsylvania, would attend MSMS Annual Session in Detroit and speak on Officers Night, September 29, on "Why is the AMA Right About VA Medicine?"
- **Committee Reports.** The following committee reports were presented: (a) Committee on Arbitration, meeting of July 16; (b) Liaison Committee with Michigan Medical Service, July 17; (c) Scientific Radio Committee, July 28; (d) Committee on Medical Economics—Ethics Courses in Michigan Medical Schools,

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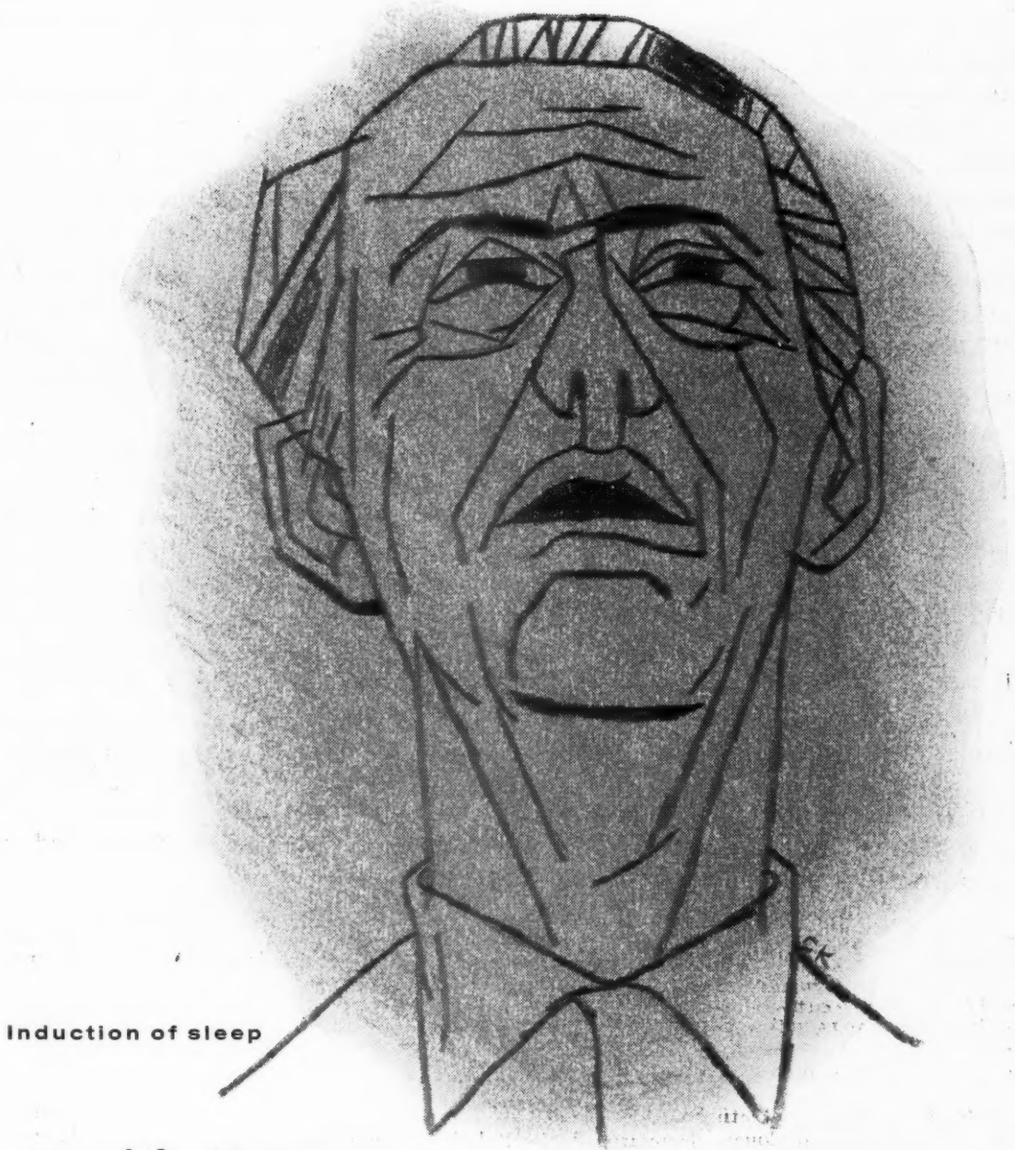

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HIGHLIGHTS OF THE COUNCIL

(Continued from Page 1070)

July 30; (e) Legislative Committee, August 4; (f) Medical Advisory Committee to Michigan Hospital Service, August 8; (g) Periodic Health Appraisal Committee, August 17; (h) Awards Committee, August 18; (i) Special Advisory Committee to Chairman of Finance Committee, August 18.

- **President-Elect R. H. Baker, M.D.,** Birmingham, presented personnel of committee chairmen for the MSMS calendar year 1954-1955.
- **A letter of congratulation** from William A. Hyland, M.D., to the MSMS Public Relations Committee Chairman and the PR personnel for recent work in Kent County was read.
- **C. L. Weston, M.D.,** Owosso, was chosen as Chairman of the Press Relations Committee for the 1955 Michigan Clinical Institute; personnel of the Committee is A. B. Gwinn, M.D., Hastings; R. A. Johnson, M.D., Detroit; H. F. Dibble, M.D., Detroit, and G. B. Saltonstall, M.D, Charlevoix. The dates for the MCI through 1963, to be held at the Sheraton-Cadillac Hotel, Detroit, were decided by the Executive Committee of The Council.
- **Robert Bannow, M.D.,** Pontiac; Carleton Dean, M.D., Lansing; R. A. Johnson, M.D., Detroit; M. H. Pike, M.D., Midland, and H. B. Zemmer, M.D., Lapeer, were chosen as Medical Advisors to the United Health and Welfare Fund.
- **H. W. Bird, M.D.,** Detroit, Chairman of the MSMS Mental Health Committee, was appointed to represent MSMS at the AMA Committee on Mental Health meeting in Chicago, September 17-18.
- **Past Presidents** R. J. Hubbell, M.D., Klamazoo; Claude R. Keyport, M.D., Grayling, and C. E. Umphrey, M.D., Detroit, with Legal Counsel J. Joseph Herbert as advisor, were appointed as a Committee of The Council to study and make recommendations for revisions in the MSMS By-Laws regarding ethics, grievance and mediation.
- **The Public Relations Counsel's** monthly report

(Continued on Page 1140)

MEDICAL MEETINGS AND CLINIC DAYS

A list of known medical meetings and clinic days, sponsored by county medical societies and other physician groups in Michigan, follows:

1954		
November 2-5	National Society for Crippled Children and Adults	Boston
November 10-11	Eighth Annual Fall Post-Graduate Clinic, Michigan Academy of General Practice	Detroit
November 17	Executive Committee, MSMS Council	Detroit
November 29-December 2	AMA Clinical Session	Miami
December 15	Executive Committee, MSMS Council	Detroit
1955		
January 27-28-29	Annual Meeting MSMS Council	Detroit
January 30	Annual County Secretaries-Public Relations Conference	Detroit
February	Executive Committee, MSMS Council	
February	Conference, Executive Secretaries, County Medical Societies	Lansing
March 8	Michigan Chapter, American College of Surgeons	Detroit
March 9-11	Michigan Clinical Institute	Detroit
March	Executive Committee, MSMS Council	
Spring	MSMS Postgraduate Extramural Courses	Statewide
April 13	Genesee County Medical Society's Tenth Annual Cancer Day	Flint
April	Executive Committee, MSMS Council	
May 11	Annual Clinic Day and Alumni Reunion, Wayne University College of Medicine	Detroit
May	Executive Committee, MSMS Council	Charlevoix
May	Twenty-Seventh Annual May Clinic, Ingham County Medical Society	Lansing
June 17-18	Upper Peninsula Medical Society	Gateway
June 6-10	Annual Session, American Medical Association	Atlantic City
June	Executive Committee, MSMS Council	
July 14-16	Mid-summer Session, MSMS Council	Mackinac Island
August	Executive Committee, MSMS Council	
September 26-27	Annual Session of the House of Delegates (MSMS)	Grand Rapids
September 28-30	MSMS Annual Session	Grand Rapids
September 25 & 30	MSMS Council	Grand Rapids
October	Clara Elizabeth Fund for Maternal Health and Genesee County Medical Society	Flint
October	Michigan Cancer Conference	Lansing
Autumn	MSMS Postgraduate Extramural Courses	Statewide

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Constitutional Amendment Proposal No. 2

"The Conlin Plan"

An answer to Michigan's financial dilemma developed by State Representative Rollo G. Conlin, Tipton, Michigan

Michigan school funds come from several sources; the principal one involves sums of money which actually are appropriated by constitutional amendment. Over a period of three years there has been an opportunity to watch the effect of the present provision upon the school districts and the state fiscal operation.

A plan is offered here which would clear up some of the inequities and some of the difficulties involved. In presenting this plan it should be made amply clear: first, that there will be no reduction in the funds to schools; second, that the appropriations will be made upon a current basis which would prove beneficial to the state and to the schools; third, there will be full protection for the school employes' retirement fund.

In any discussion of change in the constitutional provision, referred to as "Sales Tax Diversion," it is important to make the distinction between constitutional law and statutory law.

Statutory law is subject to change by legislative action each year. The legislature may, by amending the statutes, improve the law or make such adjustments as are necessary to meet changing conditions.

This flexibility is not possible with a constitutional amendment, which is rigidly fixed and cannot be changed by the legislature. Only by a vote of the people can a change be made in a constitutional amendment, and then only after a prolonged period of time and an expensive and lengthy educational program, informing the voters of the reason and purpose for such change.

For these reasons the constitution should be considered as the structural framework for statutory law, leaving to the legislature the responsibility of enacting the laws necessary to fulfill the purpose set forth within the constitution.

By this procedure, rigid protection of the purpose is achieved, while the flexibility necessary to meet changing conditions is not sacrificed. In working out the details of the proposed amendment to "Sales Tax Diversion," the proposal described in the following paragraphs reflects these fundamental principles.

This proposal continues the one-half cent of sales tax that is returned presently to cities, villages and townships. It does, however, *exclude* 50 per cent of the patients and convicts domiciled in or committed to state institutions (located within the boundaries of these local units) from the per capita distribution of these funds.

It also provides that beginning July 1, 1955, 2 cents of the 3 cent sales tax be set aside in a fund separate and distinct from the state general fund and dedicated exclusively for school aid and retirement purposes. From this fund the legislature would appropriate by law to the school districts and for the respective retirement funds, in much the same manner as those appropriations are now made.

This proposal would put school aid on a current basis and give the schools districts a rigid guarantee of their revenue. It would further give the flexibility of legislative review and determination for the distribution and allocation of these funds as needed to meet changing conditions.

The proposal includes the stipulation that prior to the division of sales tax collections the cost of collections, as determined by the Commissioner of Revenue, shall be deducted and credited to the general fund. This provision prorates the cost of sales tax collection among all the beneficiaries and will assure future adequate enforcement of collections.

There is no provision in this proposal which prevents the legislature from supplementing each of these funds when the need is demonstrated.

Summary

Provides one-half cent of a sales tax on each dollar of sales of tangible personal property for cities, villages and townships, and continues the distribution on a population basis. It does, however, eliminate from the population count, 50 per

(Continued on Page 1076)

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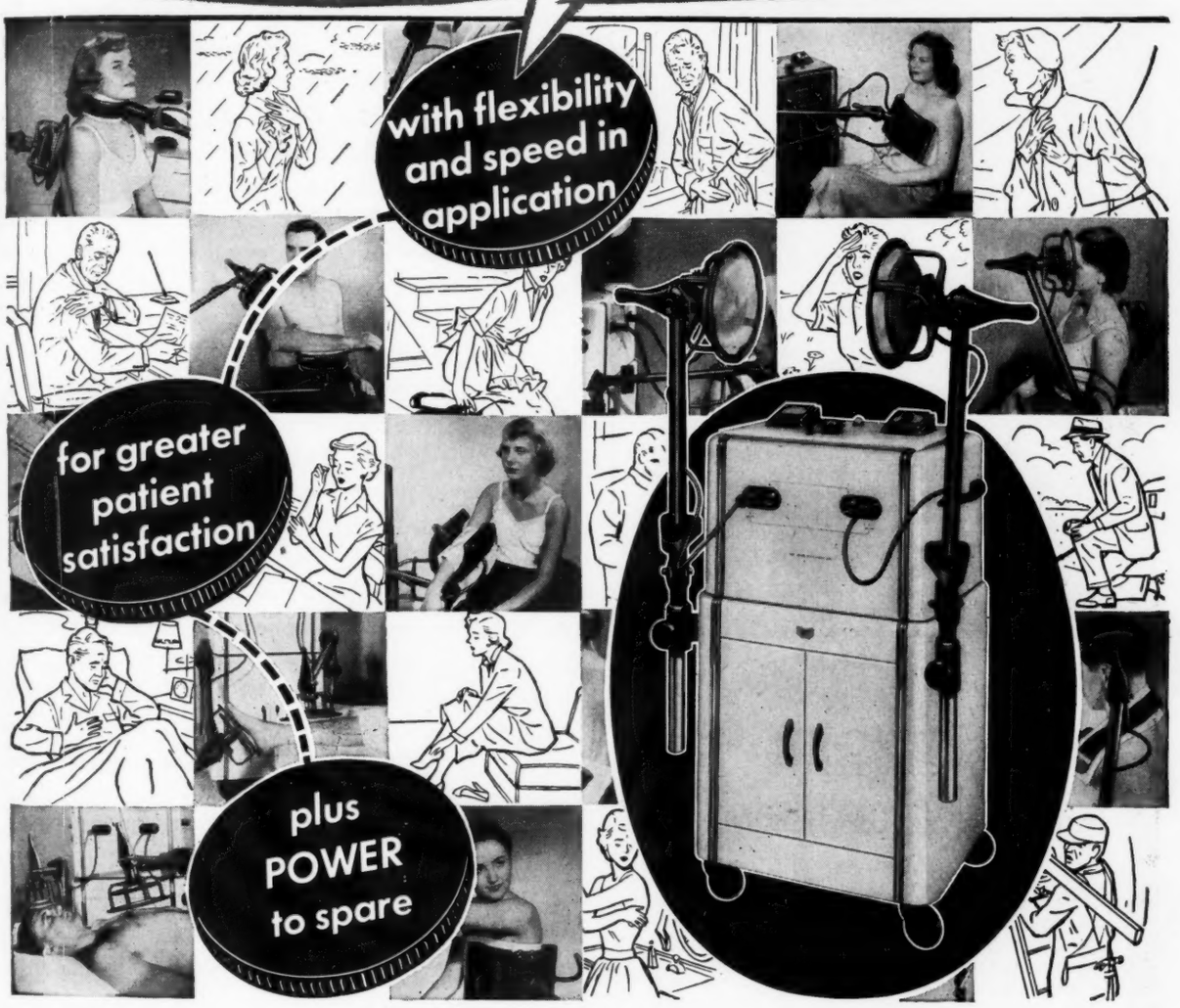

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(Continued from Page 1074)

cent of the patients and convicts who are wards of the State (this has been one of the objections to that part of the present amendment).

Provides for two cents of a sales tax levy on each dollar of tangible personal property to be deposited in a special school aid fund separate and distinct from the state general fund.

Provides that the school aid appropriation be made by the legislature from revenues guaranteed by the constitution (and deposited in the special school aid fund) in the same manner as the present School Aid formula. Retirement funds are also to be appropriated from this fund in amounts ranging from 5 to 7.5 per cent of salaries as provided in the retirement law.

Provides that the one-half cent that is at present distributed on school census basis may be placed under formula and distributed on an enrollment basis. Leaves primary school fund intact.

Provides for automatic prorating of the cost of collection of the sales tax between all agencies receiving benefits under the plan. This assures adequate enforcement of collection. (Precedent for this provision is found in Art. 10, Sec. 22, of the Constitution dedicating gasoline and weight taxes for highway purposes.)

Provides for payments to school district from sales tax collections the same year that collections are made. (Puts schools on current basis.)

Provides automatically for the rise and fall of business indices because sales taxes are a reflection of prices and volume and also reflect population increase, the plan does not need any reference to business indices.

Continue the administration of school funds within the Department of Public Instruction.

Recognizes the obligation of the state to the school districts and to the school employes' retirement funds.

Does not prevent special appropriation within the school aid formula such as are now present.

Does not freeze the school aid allocation formula into the constitution or prevent change or improvement in public school employes' retirement system.

An amendment approved by the House would freeze the sales tax at the present 3-cent level.

Provides for adjustment of funds at the transition period.

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"Golden Goose" Speakers Blanket Michigan

Nine selected speakers traveled thousands of miles in Michigan during the past year to conduct some 70 "Golden Goose" meetings with county medical societies, hospital staffs and other groups concerned with voluntary hospitalization insurance.

At the request of Michigan's Blue Cross, the speakers were recruited by the MSMS Advisory Committee to Michigan Hospital Service to spread the message of the services available under Blue Cross-Blue Shield and their most effective utilization. William S. Reveno, M.D., of Detroit, is chairman of the Advisory Committee.

Arrangements for "Golden Goose" meetings were placed in the hands of MSMS Councilors. Details were worked out by each man in his own Councilor District.

Following is the statewide schedule of "Golden Goose" meetings so ably carried out—most often at considerable personal sacrifice—by MSMS representatives:

E. C. Baumgarten, M.D., Detroit, addressed: Deaconess Hospital, Detroit; University Hospital, Ann Arbor; St. Joseph County Medical Society, Sturgis; Saginaw County Medical Society, Saginaw; Providence Hospital, Detroit; Kalamazoo Academy of Medicine, Kalamazoo; Mercy Hospital, Bay City; Macomb County Medical Society, Mt. Clemens; St. John's Hospital, Detroit; Oakwood Hospital, Dearborn, and Washtenaw County Medical Society, Ann Arbor.

William Bromme, M.D., Detroit: Menominee County Medical Society, Marinette, Wis.; Dickinson County Hospital, Iron Mountain; Gogebic County Medical Society, Ironwood; Houghton County Medical Society, Houghton; Highland Park General Hospital, Highland Park, and Blodgett Memorial Hospital, Grand Rapids.

L. Fernald Foster, M.D., Bay City: Port Huron General Hospital, Port Huron; Van Buren County Medical Society, Bangor; St. Mary's Hospital, Grand Rapids; Butterworth Hospital, Grand Rapids; Mason County Medical Society, Ludington; Mecosta-Osceola-Lake County Medical Society, Big Rapids; Community Memorial Hospital, Cheboygan; Northern Michigan Medical Society, Petoskey; Jackson County Medical Society, Jackson; Medical Society of North Central Counties, Roscommon; Alpena General Hospital, Alpena; Monroe County Medical Society, Monroe; Chippewa-Mackinac County Medical Society, Sault Ste. Marie; Delta-Schoolcraft County Medical Society, Escanaba; Marquette-Alger County Medical Society, Marquette; Huron, Lapeer, and Sanilac County Medical Societies, Marlette; Berrien County Medical Society, Niles; University of Michigan Senior Medical Students, Ann Arbor; Saginaw Valley Health and Accident Underwriters, Bay City, and Public Health District Meeting, Rogers City.

Robert L. Novy, M.D., Detroit: Macomb County Medical Society, Mt. Clemens; Oakland County Medical Society, Pontiac; Harper Hospital, Detroit; Grace Hospital, Detroit; Woman's Hospital, Detroit; University Hospital, Ann Arbor; Conference of Senior Medical Students Residents and Interns, Michigan Clinical Institute, and "Golden Goose" Breakfast, Michigan Clinical Institute.

Bradley M. Harris, M.D., Ypsilanti: Lenawee County Medical Society, Adrian, and Livingston County Medical Society, Howell.

William M. LeFevre, M.D., Muskegon: Calhoun County Medical Society, Battle Creek; Muskegon Couny Medical Society, Muskegon; Newaygo County Medical Society, Fremont; Butterworth Hospital, Grand Rapids; Manistee County Medical Society, Manistee; Grand Traverse-Leelanau-Benzie County Medical Society, Traverse City; Wexford-Missaukee County Medical Society, Cadillac; Oceana County Medical Society, Hart, and Muskegon County Medical Assistants Society, Muskegon.

J. D. Miller, M.D., Grand Rapids: Barry County Medical Society, Hastings; Allegan County Medical Society, Allegan, and Ionia-Montcalm County Medical Society, Ionia.

Ralph W. Shook, M.D., Kalamazoo: Cass County Medical Society, Dowagiac, and Eaton County Medical Society, Charlotte.

Arch Walls, M.D., Detroit: Cottage Hospital, Grosse Pointe; Delray General Hospital, Detroit; Mt. Carmel Hospital, Detroit, and Florence Crittenton Hospital, Detroit.

One of the notable qualities of ACHROMYCIN, the Lederle brand of Tetracycline, is its advantage of minimal side effects. Furthermore, this true broad-spectrum antibiotic is well-tolerated by all age groups.

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Cancer Comments

The recent plethora of publicity about cancer of the lung has created an enormous number of requests for information in both lay and medical circles with respect to the extent of the problem. In spite of the cigarette controversy or "guilt by association" hypothesis and air pollution factors which may be implicated in the etiology of lung cancer, the medical and epidemiological information available is not sufficient for any conclusions to be drawn. Nevertheless the pulmonary cancer problem as judged by mortality statistics has reached major proportions.

The Michigan Department of Health figures reveal a 12 per cent increase in the number of deaths attributed to primary malignant neoplasms of the trachea, bronchus and lung in the year 1953 as compared to 1952. It is interesting to note, for example, that there will probably be more persons in Michigan dying from primary pulmonary cancer in 1954 than there will be from tuberculosis of the respiratory system. If we can assume a constant annual change in the number of deaths in these diseases similar to the change between 1952 and 1953, and this change is projected into 1955 we can expect approximately 5 deaths from cancer to every three from tuberculosis of the respiratory system. The Michigan Department of Health figures also reveal that 16 per cent of all male cancer deaths in Michigan in 1953 were deaths due to primary neoplasms of the trachea, bronchus and lung. The age distribution of these deaths shows that the overwhelming majority occur in men over 40 years of age.

Since it is generally accepted that pulmonary resection and x-ray therapy are relatively successful in the treatment of early pulmonary cancer, the need for finding cases early becomes quite apparent. Consideration should be given to the inclusion of a chest x-ray as a routine part of the physician's examination of all males over forty years of age. Such other case-finding methods as the routine general hospital admission chest x-ray should also be a productive way to find early cancer of the lung. In the past, mass chest x-ray surveys of the general population conducted by the health departments, tuberculosis associations and in some instances by industry for the industrial population, have discovered an appreciable number of early cases of cancer of the lung in spite of the fact that the survey was made primarily for the purpose of finding previously unknown cases of tuberculosis.

The following table shows the results of eight years' experience in mass chest x-ray survey by the Michigan Department of Health.

SUSPECT NEOPLASMS FOUND FROM CHEST X-RAYS FOR TUBERCULOSIS—JULY, 1946-JUNE, 1954

Total X-Rays	*Number* 2,021,335	*Rate/1,000 Rayed*	*Per Cent of Total Abnormalities*
All abnormalities	57,739	28.5	100.00
Suspect tuberculosis	26,564	13.1	46.00
Suspect neoplasms	1,289	.6	2.23
All other abnormalities	29,886	14.7	51.77

It can be seen from the table that 54 per cent of the suspect abnormalities found were other than tuberculosis, of which 2.23 per cent were suspect neoplasms. Of the abnormalities other than suspect tuberculosis or neoplasms approximately one-half (14,192) were cardiovascular (abnormalities in the size or shape of the cardiac silhouette). All persons with presumptive abnormalities are referred to their family physician for further examinations and diagnosis.

It would seem, then, if further progress is to be made in the early discovery of lung cancer, routine chest x-rays, particularly in males over forty years of age, should be expanded to the greatest possible degree. X-rays of this group included in the physical examinations by physicians in their offices and extension of the routine chest x-rays in general hospital admissions should be considerably more productive in terms of finding early cancer, than the x-ray survey, of the apparently well population, has proven to be.

If the physician is irresolute and administers an ineffectual treatment for skin cancer, it is sometimes too late to accomplish a later cure.

* * *

The ability of a patient to pay should never be a consideration in the treatment of any form of malignant cutaneous lesion.

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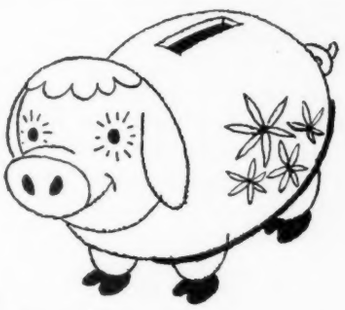

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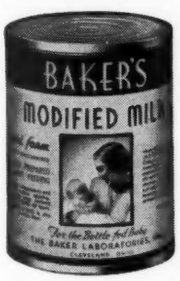

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AMA Washington Letter

THE MONTH IN WASHINGTON

When the 84th Congress convenes in January, the Eisenhower Administration will press for passage of at least two bills that failed to get through last session, reinsurance and a new program of medical care for military dependents. The former was decisively defeated in the House. The latter did not reach a vote in either chamber.

In a radio address summing up his Administration's legislative achievements, President Eisenhower confirmed that he was prepared to renew the fight next session to have the federal government set up a system for reinsuring health insurance programs. He declared: "Health reinsurance we are going to put before Congress again because we must have a means open to every American family so that they can insure themselves cheaply against the possibility of catastrophe in the medical line."

There have been no indications how far the Administration would go in amending the reinsurance bill to satisfy its critics. It is possible also that if all objectionable features were removed there would be little left of the bill.

At Senate and House hearings, reinsurance was roundly denounced by most witnesses, for a variety of reasons. AMA's position was that reinsurance wasn't needed because private funds are available for the limited amount of reinsurance that could be used, and that in addition the program projected the federal government too far in the direction of control of medical care.

Later in the session, Mr. Eisenhower himself and Mrs. Hobby made every effort to win over critics of reinsurance, and to force the bill through Congress. In the light of these efforts—including a nationwide radio appeal by Mrs. Hobby—the defeat of the bill in the House of Representatives was regarded as one of the most surprising suffered by the Administration on any domestic legislation.

Currently Secretary Hobby and Chairman Charles Wolverton of the House Interstate and Foreign Commerce Committee are attempting to bring together all parties interested in health legislation to see if a compromise can be worked out on reinsurance.

Although the dependent medical care bill wasn't passed, this fact was not in any way regarded as a defeat for Mr. Eisenhower. The bill was offered in the Senate in plenty of time for action, but the introduction of the House bill was held up until Defense Department could estimate the first year's cost, eventually set at $67 million. At any rate, neither Senate nor House Armed Services Committee held hearings on the measure.

In another statement, Mr. Eisenhower made it clear that he expects the next Congress to do something about improving and making more uniform the system of medical care for servicemen's families. Congress, he said, "must eventually meet certain imperative needs of the members of the armed forces." He explained that servicemen now "lack adequate medical care for dependents. . . . It is most important that these needs of the armed forces personnel serving their country often in remote corners of the world engage our serious consideration."

Although the American Medical Association has not had an opportunity to testify on the dependent care plan before Congressional committees, it has made its views known to the Defense Department. In general the AMA is not opposed to Defense Department proposals that a more uniform system be worked out, and that the federal government bear most of the cost. On one important point, however, the recommendations of the department and of the Association are in direct conflict: The department would have the military medical departments themselves furnish dependent medical care wherever they could, with service families going to private physicians and private hospitals only where the uniformed physicians couldn't handle them. The Association, on the other hand, proposes that dependents be cared for by the military medical departments only where civilian medical facilities are inadequate to furnish proper care.

Federal officials, meanwhile, are busy preparing to put into effect the new health bills passed by Congress. Basic state allotment percentages have been worked out for the new Hill-Burton program (for facilities other than complete hospitals) and for the expanded vocational rehabilitation program. The Internal Revenue Bureau is about to issue detailed instructions to taxpayers regarding changes in medical expense deductions and other benefits in the new tax law.

Research that results in better palliation is significant because of the possibility that by becoming very slightly more effective it will be curative.

* * *

Forty to sixty per cent of malignant melanomas of the skin arise in a pre-existent nevus.

* * *

In the whole realm of cancer, no tumor is more deadly than the malignant melanoma.

* * *

Repeated and continued local trauma commonly precedes malignant changes in a nevus.

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PR REPORT

MSMS PR PLANS for the months ahead, and some of the current PR problems facing Medicine from the national viewpoint were tackled in two recent meetings. In the mid-year meeting of the MSMS Public Relations Committee at Flint, means of encouraging county medical societies to step up their PR activities, as outlined in the new MSMS PR manual "Winning Friends for Medicine," held an important place in the discussion. Renewed radio activity, and plans for a series of low-budget TV movies (discussed below) were other items on the agenda of Chairman C. Allen Payne, M.D.

On the national level, MSMS was well represented at the Third Annual AMA Medical Public Relations Institute in Chicago, September 1 and 2. Among the interested participants in the workshop sessions there was Mrs. A. E. Milford, of Ypsilanti, president-elect (now president) of the MSMS Woman's Auxiliary, who believes strongly in the PR responsibilities of the Auxiliary. One highlight of the two-day institute was a session under the chairmanship of Hugh W. Brenneman, MSMS PR Counsel, in which a panel of "experts" outlined some of the emerging PR problems with professional groups which operate in conjunction with, or on the periphery of, the medical profession.

Mrs. Elizabeth Peck, of Detroit, president of the Michigan State Medical Assistants Society, played a key part in another panel discussion.

FIRST IN A SERIES of at least three 13-and-one-half minute movies to be produced by MSMS this fall and winter for television and general use is scheduled for release late in October. It will deal with the career opportunities in the medical associate field, and is designed to be adaptable to various uses. Using television technique "short-cuts" to keep the cost at a minimum, scenes were shot in Bay City and Lansing. The introduction and conclusion feature L. Fernald Foster, M.D., Secretary of MSMS.

The second in the series will be built around a scientific subject, tentatively a better understanding of epilepsy. The third will have a socio-economic theme, probably the limited increase in the cost of medical care in comparison with other family necessities. Co-operation of the University of Michigan Audio-Visual and Television departments in technical matters and production planning was expected to speed completion of the second and third films.

First conceived as a television series, the movies will be filmed in color to make them more attractive for other showings. Upon the success of the first three low-cost movies will depend production of similar future films.

SUCCESS FOR "MEDIC," the new Dow Chemical Co. presentation over the NBC Television network was foreseen by MSMS representatives who viewed a special closed-circuit preview in late August and the kinescope of that preview at the AMA PR Institute. The series promises to be outstanding, thrilling and a strong PR tool for better understanding of the medical profession.

"Medic" is scheduled in Michigan over WWJ-TV, Detroit; WOOD-TV, Grand Rapids; WJIM-TV, Lansing, and WNEM-TV, Bay City.

Watch for two other upcoming TV shows expected to give medicine a boost. The "March of Medicine" series will be back on NBC-TV this season, beginning with a program on mental illness at 5:30 p.m., Sunday, October 31. This will be followed by a special TV report during the AMA Clinical Session in Miami, and a full series in the spring of 1955.

The second show to remember—a one-time presentation—will be "The Doctor" on "Cavalcade of America" at 7:30 p.m., December 7 over ABC. Starring Dean Jagger, the production will show the crises and decisions faced by a middle-aged M.D. during just one day of his practice.

THE MICHIGAN STATE FAIR exhibit of MSMS this year was expected to be the most successful ever when final figures were totaled. A cartoon-type film was used as a "crowd stopper" and a variety of up-to-the-minute pamphlets were distributed to the thousands of interested visitors. A comparative study of the cost of medical care—in easily understood chart form—was added to the 1954 exhibit.

LATEST FILM TO BE ADDED to the AMA library is "A Life to Save." This twenty-eight minute movie tells the story of how a woman's life was saved by her family physician after a quack healer is exposed through the investigative facilities of the local medical societies and the AMA. At present the film is reserved for TV use only, although special color prints are available for preview by medical societies. It will be released later for non-TV appearances.

The five-minute TV film series introduced last year by AMA has now had six new subjects added. Bookings may be made through the MSMS Public Relations Department.

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Editorial Opinion

DIABETES AND PREGNANCY

In the last few years, the relation of diabetes and pregnancy has been the subject of numerous reviews. Observations made in several countries have supplied many thought-provoking facts. The clinical reports concentrate on such things as the management of the pregnant mother and the reduction of fetal mortality. Like the arteriosclerotic complications, the problems of the pregnant diabetic have grown rapidly since the discovery of insulin and the prolonged survival of young women with diabetes. The physiological implications of many of the observations of the last ten to fifteen years are assuming more and more importance. Some of the facts may be put together as follows.

Diabetic women of childbearing age may have children at practically no increase in risk to themselves, provided their diabetes receives good care. There is still a considerably increased fetal wastage. All authorities agree that good management of the diabetes, which probably means good nutrition, must be the physician's first concern. The hormonal response to pregnancy includes a great excess in the production of adrenal cortical hormones, this excess approaching the quantities excreted in Cushing's syndrome (Touchstone, unpublished). However, the adrenal hormones thus measured in blood and urine are essentially the same during pregnancy in diabetic women and normal women. Since normal women have no disturbance of carbohydrate metabolism from these endocrine responses to pregnancy, one assumes that the increased insulin requirement of pregnant diabetics, which commonly amounts to a total of 90 units daily in the third trimester, is the result of an increased demand coupled with their deficiency of insulin. The deficiency of the insulin reserve of the "prediabetic" woman during pregnancy may also be revealed by sugar tolerance tests performed after the fourth month. The prevention of large babies by modern pelvimetry and cesarean section, when indicated, improves the outlook for mother and child. The older, and well-confirmed, studies on the increased frequency of large babies (with birth weight over 10 pounds or 4500 grams) in women destined to become diabetic five to fifteen years later offers a possible opportunity to anticipate the onset of frank diabetes by many years. All authors agree on this increased frequency of large babies in "prediabetics" and an extensive investigation of pregnant women is being undertaken by Dr. Hugh L. C. Wilkerson and his associates of the U. S. Public Health Service in cooperation with the Children's Bureau of the Massachusetts Department of Public Health to see if a new avenue of preventive medicine can be opened.

The experimental and clinical hypotheses of Hoet and others are still young, and much work remains to be done before pregnancy can be viewed in true perspective as a factor predisposing to diabetes in those who already have some form of familial (genetic or developmental) defect. In this difficult area there are many discrepancies and inconsistencies which are not labored here because their resolution demands more investigation rather than editorial ink. In the last analysis, students of diabetes will be grateful to all of the observers who have advanced this approach to the study of a disease whose natural history seems to extend from the patient's grandparents to the patient's grandchildren.—F. D. W. LUKENS, M.D., in *Diabetes,* September, 1954.

RESEARCH

In 1822 the chance discharge of a musket into the body of Alexis St. Martin brought Dr. William Beaumont from the fort on Mackinac Island to attend him. The Army surgeon dressed the wound and returned to his post, not expecting the trapper to survive his injury. But he did and the gastric fistula which resulted became a window from which came an original study of physiology.

It would be untrue to state that William Beaumont was struck immediately with the potentiality for investigation, but sometime in the many months while he dressed the wound and supported St. Martin, the idea *did* come to him, and he began to devise experiments and to record his observations.

One of the major faults of this midpoint of the twentieth century, is the tendency to think of everything in grandiose terms. Research projects seem impossible unless they are conducted in fancy laboratories with extensive budgets. Much of the observation is performed by gears and levers, and nearly all of the conclusions come out of an electronic computing machine.

Certainly the technical literature is cluttered with papers which are full of sound and fury and empty of practical application. Maybe we need more William Beaumonts to whom research was an evolution from clinical observation. — WILLIAM BROMME, M.D., in *Woman's Hospital News Bulletin,* August, 1954.

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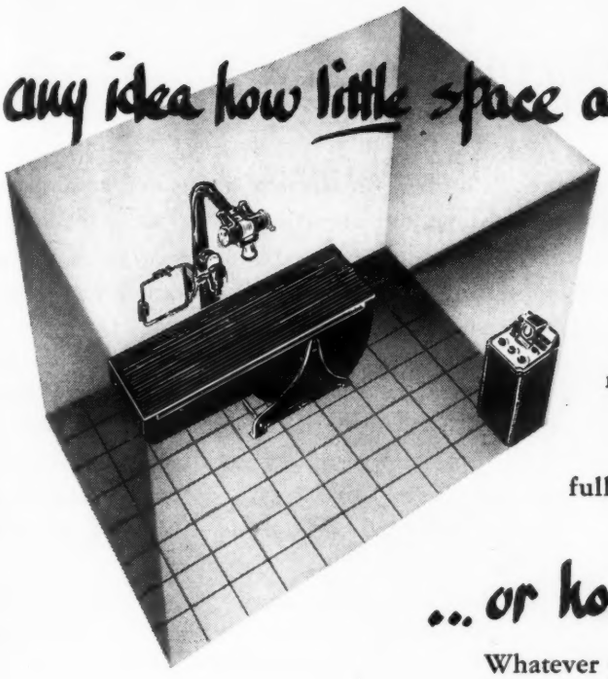

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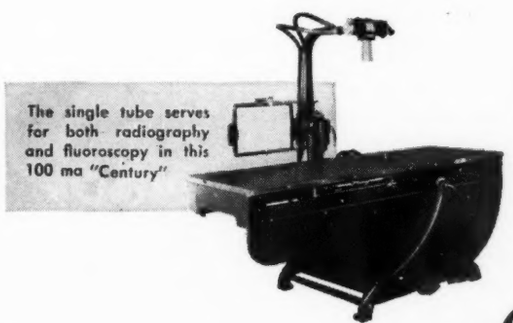

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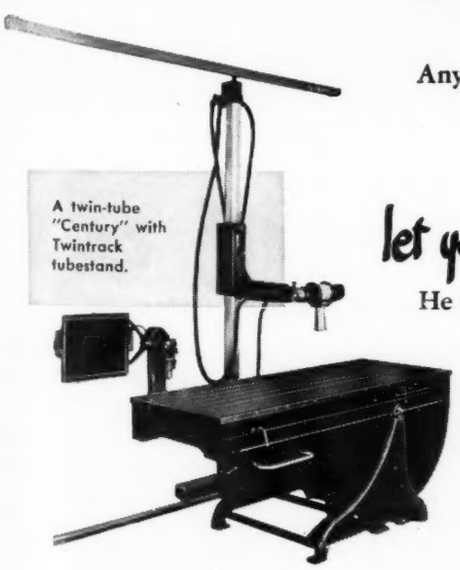

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Revolutionary "MEDIC" by Dow

Four and one-half years of hard work and faith in an idea was consummated on September 13 when television's most revolutionary new program MEDIC, went on the NBC network, sponsored by The Dow Chemical Company of Midland, Michigan.

Parent of the idea of this startingly different show is Jim Moser, original writer of the "Dragnet" series, who literally has lived in Los Angeles hospitals since 1952, gathering real life material for MEDIC. Because of his passion for authenticity, the exhaustive research he has done in the field of medicine and the valid premises on which the show is built, the Los Angeles Medical Association has extended its official approval to MEDIC and has been supported in this move by the approbation of the American Medical Association.

The program will have no single character running through it. Instead, Medicine becomes the personality. Through the various doctor-patient dramas, the show will touch on all phases of life, all types of stories, both historical and contemporary.

The series will not only be documentary in treatment and actual in fact; it will be filmed on real-life locations rather than a sound stage. Hospitals, clinics, doctors' offices and private homes will be used as settings for the drama.

Because Moser believes that "to get acquainted with a subject, like an individual, you must know the background"— approximately two out of every thirteen scripts will deal with incidents in medical history. The assassination of Lincoln and his subsequent medical treatment will be the subject of one show. An incident in the life of Louis Pasteur is planned for another. Moser hopes they will be able to make a film aboard a Navy hospital ship or in an Army hospital. For the pilot film this new production team of Jim Moser and Tony Miner entrusted the direction to Bernard Girard, who for many months had worked closely with Moser on the development of the series. In the pilot film they chose a singularly daring subject. The film, almost entirely photographed in the Los Angeles County Hospital, dramatizes the story of a young expectant mother whose doctor discovers she has a fatal case of leukemia. The girl, who has waited seven years for a child, is informed of this tragic news by her husband and the remainder of the story is carried breathlessly along by her desperate fight to live long enough for her baby's birth.

With almost unbearable intimacy, this absorbing drama achieves a raw, documentary realism. A nerve-tightening scene showing the delivery of the child was filmed at an actual operation, and carries through to the cutting of the umbilical cord. The newly born baby actually cries on cue in the drama's crucial scene, offering audible evidence that it will live in spite of its mother's death. The crew waited through six births to get these shots.

Besides the intimate personal story of this film, a doctor's struggle to save a child's life is brought into full view. His knowledge and technique, his devotion to his profession, and his human understanding are all brought into play to give the viewer a ready comprehension of the medical solution to a grave problem. In this, the film achieves its most desired effect . . . the coupling of entertainment with the presentation of authenticated information.

MEDIC will touch frequently on the "art" phase of medicine. By acquainting the public with the doctor of today, many among the viewing audience will get an understanding of the complex, highly specialized field that forms the very matrix of life and death. Modern methods of diagnosis, surgery, psychosomatic medicine, preventive care and laboratory testing all will be included.

EXPANDING GROUP INSURANCE

A three-fold expansion of group insurance protection for American families has taken place since the end of World War II. Almost 34 million persons are now covered, primarily for benefits for hospital and surgical care. Major medical expense coverage, the newest type of group insurance, now protects some 1.1 million individuals under 700 master contracts. It has had the most rapid rate of growth of all group insurance plans.

On a nationwide basis, health insurance plans have enrolled about 60 per cent of the population, providing some form of protection against future hospital expenses for some 100 million Americans. Over 75 million have insurance against surgical bills, and nearly 40 million have coverage for doctors' calls.—Research Council for Economic Security, August, 1954.

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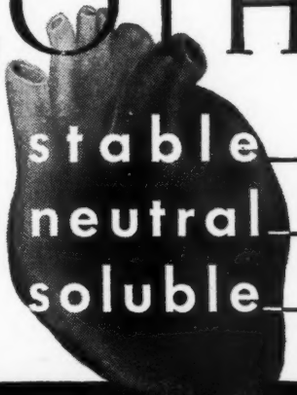
(BRAND OF HYPHYLLINE)



stable — no precipitation observed when 5% solution submitted to action of gastric juices.

neutral — solutions of Neothylline in distilled water are strictly neutral.

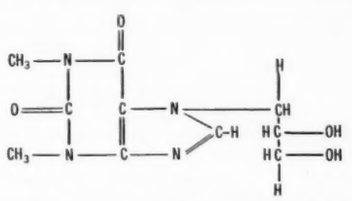
soluble — 16.5 grams in 100 c.c. water at 21° C.

in cardiovascular dilation, Neothylline is effective as a diuretic and myocardial stimulant in the management of edema secondary to congestive heart failure. Most noted is elimination of pain and normal oxygenation of the cardiac muscle.

Neothylline is also indicated in the treatment of bronchial asthma, paroxysmal cardiac dyspnea and Cheyne Stokes respiration.

Neothylline is better tolerated orally in larger doses than most theophylline derivatives (such as aminophylline) which produce gastric irritation. In contrast to the latter it can be given orally in sufficiently large doses to produce the characteristic bronchodilator and respiratory actions of theophylline compounds, as well as the well-known vasodilator (diuretic) and myocardial stimulant effect of smaller doses.

CHEMICAL COMPOSITION:
Dihydroxypropyl Theophylline



SUPPLIED
Tablets 0.1 Gm. (1½ grains)
Bottles of 100's, 500's, 1000's
Tablets 0.2 Gm. (3 grains)
Bottles of 100's, 500's, 1000's

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Therapy of Diabetes—Modern Concepts

By Edwin L. Rippy, M.D.

Dallas, Texas

IN 1870, A. Trousseau was lecturing to a medical class in Paris. He was presenting a patient, a thirty-six-year-old man obviously afflicted with severe symptomatic diabetes in early acidosis. In the courtly style of the day he remarked: "Gentlemen, his glycosuria is of a bad kind, against which medical treatment cannot prevail. Whatever I do the disease will resist my efforts . . . and ultimately prove fatal."

He described another case: "I prescribed 10 grains of levegated chalk to be taken daily . . . a restorative diet . . . the inhalation of oxygen . . . he died two days after this."

Sir William Osler, in his textbook of 1892, stated: "In children the disease (diabetes) is rapidly progressive and may prove fatal in a few days." He added: ". . . no drug appears to have a directly curative influence. Opium alone stands the test of experience as a remedy capable of limiting the progress of the disease."

These attitudes, expressed by the most astute medical thinkers of their day, seem antiquated in the light of present knowledge. It is now well known to informed laymen and physicians alike that this morbid picture has miraculously changed for the better. The diabetic of today has the privilege of enjoying almost normal life expectancy, but only if modern proven concepts of early detection, adequate diet, proper insulin and supplementary treatments of value are utilized intelligently. Without exception, it is the obligation of the conscientious physician to see that the public, and his patient in particular, are taught these facts.

Modern therapy of diabetes involves many tried and proven principles, a great deal of judgment and some tricks. A doctor, a specialist in diabetes, once very aptly almost disappointed an anxious patient by saying: "You were misinformed. I don't treat diabetes, but I will teach you to treat it!"

An approach to the treatment of diabetes may well be considered under the following headings: (1) the attitude of the physician, (2) the attitude of the patient, (3) the regulated eating program—diet, (4) the choice and application of an appropriate insulin.

Attitude of the Physician

The physician must not only be master of the known physiological facts and their clinical application but must be tempermentally equipped with the patience to cope with this tedious disorder and the often perverse personality of the diabetic patient. He must have a knack of persuasion, impression and instruction and a zeal to sell the concept of good control. All too often diabetics have been introduced poorly to their life-long tussle by learned, but un-indoctrinated, doctors, and the resultant premature complications are a poor testimonial. The physician has a profound obligation in aiding his patient in the beginning in developing a favorable attitude and should use studied techniques to this end.

Attitude of the Patient

Von Noorden once described the diabetic as "a pessimist who takes pleasure in brooding over his fate, doubts his future, and thereby loses his enjoyment of the present." This attitude was perhaps understandable in those days, but is now unjusti-

fied, though with variations still encountered. Unless the patient can be taught to accept philosophically the necessary self-discipline of being a diabetic and assume a favorable attitude toward his disorder, then all the scientific facts now available will be of no benefit and he will proceed inevitably to the "precocious senility" and premature death that is the penalty of the poorly controlled diabetic.

People of all ages and all temperaments develop diabetes; some are quite capable of making necessary adjustments to a regimented mode of living; others are less well endowed and need constant encouragement. Some, unfortunately, lack the ability to adapt to any restrictions and eventually suffer accordingly. All patients do better if under the continuous periodic care of a physician.

Regulated Eating Program—Diet

The diet of the diabetic of today is actually the normal diet for the specific individual, minus concentrated sweets. The diet formula is dictated by the patient's sex, age, activity and present state of nutrition. It is to be emphasized that the diet is determined only by the need of the patient and should not be modified simply to keep the patient off insulin. All patients should be on a "formal" measured diet; there is no place for the so-called "free diet". It is the obligation of the physician to create the "diet formula" and, if possible, to have a dietitian translate this into a master menu which she will present and explain to the patient. The patient may often assist in the preparation of his own diet, which should be adequate in quantity, variable in quality and to his liking. The old theory of teaching a diabetic to curb his appetite and remain as lean as practicable is still tenable.

Developing the diet formula is relatively simple and can be done in this fashion:

1. Figure the optimum number of calories to maintain, or attain, normal weight. In general, maintenance diets for women average 1800 to 2000 calories; for men 2200 to 2500 calories. A good diabetic reduction diet for women is about 1250 calories and for men 1,500 calories. Children require approximately 1000 calories plus 100 for each year of life.

2. Next, establish the daily protein allotment. Adults need .66 to 1.5 gms. per kilogram of weight. Children require 2 to 3 gms. or more, per kilogram of weight. Protein is an essential food, a good food and is liver protective. It is metabolized into glucose slowly and works well with modified insulins. From seventy to 120 grams per day are usually allowed.

3. Next, figure a "middle-of-the-road" carbohydrate allowance which may range from 150 to 250 grams daily, depending on such factors as severity of diabetes, the patient's wishes and total calories allowable.

4. Finally, add fat to provide the proposed number of calories. Most desirable are vegetable fats, dairy fats, and animal fats, in the order named, to keep the diet low in cholesterol.

For those not in a position to individualize the diet, the meal plans formulated by the American Diabetes Association, the American Dietetic Association, and the United States Public Health Service, utilizing the "exchange system", are satisfactory.

The patient must be taught from the onset to eat regularly, and in order to achieve balanced control, carefully follow the distribution of the diet as prescribed, which in turn will be dictated by the timing of the insulin to be used.

Recommendations for the distribution of the diet to accommodate modified insulins follow:

INSULIN	BREAKFAST	LUNCH	AFTERNOON SNACK	SUPPER	BEDTIME SNACK
NPH	1/5	2/5	Yes	2/5	?Yes
Lente	1/5	2/5	Yes	2/5	?Yes
Protamine	1/5	2/5		2/5	Yes
Globin	1/3	1/3	Yes	1/3	

The average snack should be approximately P-10, CHO-20, F-10, and is to be subtracted from the daily total before the meals are distributed. The above distributions may have to be modified to fit individual needs, based on before meal and bedtime urinalyses. Usually a pattern of glycosuria and/or reactions will develop which will guide such changes.

Though some prefer to start with small diets and gradually increase them, it is entirely satisfactory to place the patient on his full and final diet at the onset of treatment. The creation of the diet is the first step in control of the diabetes and in approximately 30 per cent of patients it may be the only step, insulin not being required. Though there are no fast rules as to which patients can fulfill the criteria of control on diet alone, they will usually fall into the following group:

1. Mild diabetics, usually over forty and diagnosed early.

2. Diabetics who are grossly overweight and who are willing to reduce to normal by restricting food intake; this often modifies or even reverses the diabetic state temporarily or even permanently.

3. Diabetics, either normal in weight or excessive, who have been abnormal carbohydrate eaters and who are willing to drastically reduce this element of the diet.

4. Mild diabetics, diagnosed early, who are well controlled on diet and a small amount of insulin may occasionally be able to discontinue insulin as their condition improves.

Conversely, it is usually not difficult to determine initially those patients who will need insulin and valuable time may be saved by starting insulin without delay. Insulin is usually indicated in the following type patients: (1) always in children, adolescence and youth, (2) those under forty years of age, (3) those presenting on diagnosis the classic symptoms of excessive appetite, weight loss, polydipsia, and polyuria, (4) those having fasting blood sugars (Folin-Wu) of 200 mgm. per cent or over, (5) those showing ketonuria and/or persistent glycosuria, (6) underweight patients needing ample diets.

Patients should be urged to avail themselves of insulin early if needed. It is the only true antidiabetogenic factor known and the body's most powerful anabolic hormone. Fortunately, there is a variety of good modified insulins available, varying only in timing (onset, peak, and duration of absorption). There are some minor differences of opinion among qualified physicians as to the utilization of these insulin combinations, but one concept that may aid in the choice of the best insulin for the specific situation follows:

1. Unmodified (Regular) Insulin in acidosis and coma where rapid absorption is essential; during infections when glucose tolerance is decreased; as a supplement to longer acting insulins.

2. Protamine Zinc Insulin (PZI) in mild to moderately severe diabetics whose daily insulin need does not exceed 40 units; in physically active patients; in older diabetics.

3. Globin Insulin in mild diabetics who are capable of producing relatively normal fasting blood sugars but are glycosuric after meals and whose insulin need does not exceed 30 units a day.

4. NPH Insulin in young diabetics; severe diabetics regardless of dosage needed.

5. Lente (70-30) Insulin in approximately same indications as NPH, perhaps a little smoother in absorption.

It is desirable to control the patient on a single morning injection of the appropriate insulin, altering the distribution of the food to fit the absorption of the insulin. "Freaky" insulin regimes are to be avoided. The addition of Regular insulin to the morning NPH or Lente is acceptable and its use as a supplement before lunch and/or supper is good practice if such is entirely necessary. There have been some good reports with NPH and Globin in which ⅔ of the daily dose is given before breakfast and ⅓ before supper. Some continue to use the "prepared on the spot" insulin mixture of 1 part PZI and 2 parts Regular, though the result is approximately that of NPH.

After the severity of the diabetes has been evaluated, the diet developed and the eventual insulin chosen, there are several ways to initiate insulin therapy. If there are no ketones present, then one may proceed leisurely because the patient will literally begin to improve after the first injection of insulin. Basic control may be established under a hospital regime in seven to ten days but may be accomplished equally well in an office well organized for the care of diabetics.

The following rules are suggested for the initiation of insulin therapy:

1. In mild diabetics: After placing on appropriate diet with proper distribution of food to fit the chosen modified insulin, start with morning injection of a safe dose of 10 to 20 units. Increase dosage by approximately 2 units every three to four days until t.i.d. a.c. and h.s. urines begin to clear of sugar; then double check with fasting and mid-afternoon blood sugars.

2. In more severe diabetics one may either use the above plan starting with a larger morning dose of 30-40 units and gradually increasing dosage or

3. Another practical method is the use of "insulin on demand" (also useful during infections, illnesses, post operative, et cetera). Check urine specimens for sugar before each meal and bedtime (perhaps once in the night if glycosuria is heavy) and give Regular insulin each time as follows:

If urine sugar is ++++	give 20 units
If urine sugar is +++	give 15 units
If urine sugar is ++	give 10 units
If urine sugar is +	give 5 units
If urine is negative	give none

This may be modified in children to a schedule of 16-12-8-4 units. After three to four days when insulin need appears to be stabilizing, discontinue the above regime and give modified insulin of your choice in the morning in a dose approximately ¾ that of the total Regular insulin needed on the last day. Adjustments, thereafter, can be made as above indicated.

As a rule, insulin need will be relatively high in the beginning but as tolerance increases, the dosage may be gradually reduced and will soon level off. This is important to remember and should

be done routinely as urine specimens become negative in order to avoid resultant hypoglycemic shocks. It will take approximately four to six weeks for the average diabetic to become stabilized. Obviously, if a diabetic presents incipient acidosis, the approach with insulin therapy must be much more vigorous.

Though the insulin need in diabetes is highly variable, the average dosage required in various age groups (to serve as a guide) follows:

Infants, 0-3 years, highly sensitive	2- 10 units
Children, 3-12 years, not too difficult to control	10- 30 units
Adolescents, 12-20 years, erratic, brittle	50-120 units
Young adults, 20-35 years, variable	30- 90 units
Middle age, 35-55 years, more stable	30- 60 units
Senile, 55+ years, usually stable	10- 40 units

The amount of insulin needed varies with the age of onset of diabetes. A patient of forty who has had diabetes twenty-five years may require 70-80 units; whereas if the onset of his diabetes was of recent date, he might require only 30-50 units. There are obviously exceptions to the above figures.

Until more is known regarding the cause of complications in diabetes, the physician is obligated to be a strict disciplinarian and to teach— and preach—to his patient the necessity for, and the means to achieve, optimum control. "Symptomatic" control is easily accomplished but unless "survival" control is attained, diabetic therapy is a poor irony.

It is well to review the criteria of good control:

1. The patient's diet should be such as to attain and maintain normal weight.
2. The patient should feel well and have no symptoms referrable to diabetes *per se*.
3. Fasting blood sugars should be in the upper limits of normal or slightly above (ideally not over 140 mgm. per cent/100 cc blood Folin-Wu).
4. The urine should be mostly aglycosuric.
5. There should be no ketonuria.
6. There should be no hypoglycemic shocks.

There are a few miscellaneous facts worth mentioning. The diabetic is a good candidate for supplementary vitamins, particularly Vitamin B. The older diabetic with neuritis does well on massive B_{12} injections which he can give himself. Until there is further clarification of fat and its possible relationship to atherosclerosis, the diet should be as low in cholesterol foods as practical. Whether or not lipotropic substances are helpful is not definitely known. It is suggested they may be used in severe diabetics and old diabetics.

The patient, after initiation of treatment, is on the "long stretch" of life-long care and should be seen by his physician at periodic intervals. He should be taught to do urinalyses one to four times a day, before meals and bedtime, depending on the severity of his condition. He should be taught the pitfalls and hazards of his disease and its control measures. For instance, he will find that emotional upsets often produce glycosuria and may even induce true acidosis, in spite of his adherence to his routine control measures. He must be taught that dread acidosis is an entirely preventable complication and may be aborted by proper measures if his urine studies for glucose or ketones indicate its onset. He will find that exercise tends to lower blood sugars and that shock may be avoided by extra food or less insulin. He may be surprised to find that diabetes is not a static condition but tends to vary in sensitivity of control—a poorly controlled patient requiring gradual increases in insulin and a well-controlled patient being able to do well on minimal doses, depending on age. He will learn that it is better to live openly with his diabetes than to be secretive. The more he knows about his disorder, the easier it will be to live with it.

It is perhaps a mistake to teach a patient that he can live life "as usual" with diabetes, because he will find that untrue. On the other hand, he should be taught to accept, with a grateful heart, life-saving present-day control measures. He will be justified in looking to the future with the optimistic hope that further advances will be made in his behalf.

3622 Fairmount

In lung cancer it is now recognized that cough, chest pain, wheezing, expectoration, and loss of weight are manifestations of a late lesion.

* * *

The incidence of gastric cancer is significantly greater among the relatives of gastric cancer patients than in the general population.

Malignant melanoma is commonest in blond and sandy-haired individuals.

* * *

Today, cancer kills far more children than measles, diphtheria, whooping cough, poliomyelitis, and many other childhood diseases.

Co-existence of Hypothyroidism with Diabetes Mellitus

By Crosby D. Eaton, M.D.

Detroit, Michigan

IN MICHIGAN, with the rest of the Great Lakes area, we are familiar with the fact that we are in the so-called goitre area of the United States. The vast majority of goitre occurring in this area is of the simple colloid type. This is frequently accompanied by deficiency of thyroxin production with resulting hypothyroidism of greater or lesser degree. A low metabolism may also be present with the nontoxic adenomas of later life.

The symptoms of hypothyroidism are familiar but will be listed briefly: (1) fatigue, sleepiness, (2) dry skin, hair, mucous membranes, brittle nails, (3) numbness, tingling of hands and feet. Cramping of muscles, particularly those of the legs while at rest, (4) susceptibility to cold, chilliness, cold hands and feet, (5) nervousness, irritability, inability to concentrate the mind, (6) constipation, (7) nasal congestion as a result of swollen mucous membranes. This sometimes produces headache of the sinus type, (8) menstrual disorders, particularly a shortened cycle.

The physical signs in addition to the dry skin and hair, are: (1) subnormal body temperature, (2) slow pulse, (3) low pulse pressure, (4) myxedema when present. The laboratory findings are a low metabolic rate, high blood cholesterol. A low up-take of radioactive iodine is also found.

It is to be noticed that some of the symptoms of hypothyroidism are similar to those of diabetes: fatigue, sleepiness, dry skin, hair and mucous membranes, constipation and paresthesias. It is not uncommon to bring a case of diabetes under good control and yet have the above symptoms persist. The incidence of hypothyroidism among diabetics is as high or higher than that among non-diabetics and produces the same picture.

It has been known that toxic goitre, particularly Graves' Disease, increases the severity of diabetes and, from this, it was formerly thought that the administration of thyroid to a diabetic would make his disease more severe. This does not occur, provided the dosage is regulated to maintain a normal metabolic rate.

In the Grace Hospital out-patient department and among private cases, thyroid has been administered to several hundred diabetics with no effect upon diabetic control. These cases include patients of all ages from childhood to old age and all degrees of severity of the diabetes. The results of this therapy are the same as in the non-diabetic as would be expected. The fatigue is relieved, the hair and skin become normal and the other symptoms abate or disappear.

There are other reasons for thyroid therapy, when indicated, in diabetic patients:

1. By improving circulation and shrinking the mucous membranes of the upper respiratory tract, resistance to the common cold is increased. Many patients who have been subject to repeated colds find that they have only one or two a year under thyroid therapy. The tendency to furunculosis is also lessened.

2. The tendency to arterial thrombosis is lessened by improving the arterial circulation inasmuch as thrombosis is most apt to occur when the circulation is depressed.

3. Circulation to the extremities, particularly the feet, is improved, probably helping to lessen the probability of gangrene, particularly among older patients or those with long-standing diabetes with arteriosclerosis.

Summary

It may be said that thyroid administration to diabetics, who are hypothyroid, has the same beneficial effects as upon non-diabetics. It has no effect, either beneficial or adversely, upon the control of the diabetes. By lessening the occurrence of colds and other infections were the tendency to vascular accidents and gangrene, it is particularly beneficial to the diabetic patient.

462 Fisher Building

The incidence of cancer of the cervix is higher in Caucasians than in Negroes, while the reverse is true of cancer of the body of the uterus.

* * *

Cancer occurs in every type of vertebrate and all multicellular organisms.

The best evidence indicates that cancer is not a disease of civilization.

* * *

Cancer can and does occur at any age, and youth is no protection against its development.

Management of the Diabetic Patient with Heart Disease

By I. Donald Fagin, M.D. and
Julian M. Guidot, M.D.

Detroit, Michigan

DIABETES MELLITUS predisposes to earlier onset, increased frequency, and increased severity of arteriosclerotic disorders, and reduces the relative protection otherwise enjoyed by women against arteriosclerotic heart disease. Hypertension is also commonly associated with diabetes. Diabetes affords no protection against rheumatic or luetic or other etiologic categories of heart disease which may be coincidental; thus, the diabetic patient with heart disease is a common problem to the practitioner. In most instances, the problem is not a difficult one, and the principles of management of diabetes and of the heart ailment dovetail nicely. However, in an occasional case, the principles of treatment of each appear to be diametrically opposed.

In a twelve-month period ending February 28, 1954, there were 345 admisions of patients with diabetes mellitus to Mount Carmel Mercy Hospital. Ninety of these admissions (26 per cent) were of patients having heart disease as well as diabetes. Four of these patients were admitted twice during the year, so our total number of diabetic cardiac patients was eighty-six. The diabetes varied in severity from asymptomatic hyperglycemia to severe ketosis. The heart disease ranged from asymptomatic electrocardiographic changes (e.g., ECG evidence of old infarction) or roentgenologic abnormalities (e.g., enlarged heart) to acute myocardial infarction complicated by arrhythmias and congestive failure.

Cardiac complaints were the reason for admission in fifty-four instances, while seven admissions were for diabetic management. The remaining twenty-nine admissions were primarily for other coincidental difficulties, including infections, surgical emergencies, cerebrovascular accidents, and peripheral vascular disease. These eighty-six diabetic cardiac patients consisted of thirty-nine men and forty-seven women. The average age of the men was 59.5 years (range, 45-73) and of the women, 64.5 years (range, 50-73). The major cardiac diagnoses in these patients were as follows:

Rheumatic heart disease	2
Asymptomatic	1
Congestive failure	1
Hypertensive heart disease	20
Asymptomatic	12
Congestive failure	8
Hypertensive and arteriosclerotic heart disease	16
Asymptomatic	2
Anginal syndrome	3
Acute coronary thrombosis	5
Congestive failure	6
Arteriosclerotic heart disease	48
Asymptomatic (including old infarctions)	8
Anginal syndrome	7
Acute coronary thrombosis	20
Congestive failure	12
Paroxysmal ventricular tachycardia	1

Of this group of eighty-six hospitalized diabetic cardiacs, seventy-two patients (84 per cent) presented no major problem in diabetic management; i.e., hyperglycemia and ketonuria were either absent or controlled early and without difficulty. In fourteen patients (16 per cent) moderate to severe ketosis complicated the clinical picture, in six instances being of such severity that the metabolic derangement constituted an immediate threat to life. In these fourteen patients, the breakdown in diabetic control was associated with coronary thrombosis in seven cases, with congestive failure in two, and with other complicating factors such as infection or cerebrovascular accidents in five. Thus, although the number of cardiacs in whom the uncontrolled diabetes posed a serious problem is small, any moderately large general hospital will encounter several such cases each year.

Nineteen of the eighty-six patients died: seven of coronary thrombosis (including 2 cardiac ruptures); eight of congestive failure; three of cerebrovascular accidents; and one of gangrene of a leg. None of the deaths in this series was attributable to diabetic acidosis or electrolyte imbalance.

Using our review of this series as a background, we should like to discuss briefly the management of the diabetic patient with heart disease.

A few comments regarding the cardiovascular effects of insulin are pertinent. In dosage sufficient to produce hypoglycemia, insulin may cause an increase in heart rate, in venous pressure, in systolic blood pressure, in stroke volume, and thus in car-

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diac output and cardiac work. Arrhythmias and minor electrocardiographic changes may also be noted. These objective manifestations of insulin overdosage, together with the pallor and sweating which accompany them, and the subjective sensation of jitteriness, are srikingly similar to the effects of an injection of adrenalin. Some current evidence suggests that the cardiovascular responses to insulin hypoglycemia may be secondary to a discharge of epinephrine from the adrenal medulla plus stimulation of the cardiac sympathetic nerves, rather than to any direct action of the insulin or the lowered blood sugar on the heart. Insulin overdosage has been known to precipitate anginal pain, myocardial infarction, acute pulmonary edema, and congestive heart failure. Thus, insulin, the most important element in the treatment of diabetes, when used injudiciously, can cause acute cardiac complications in a susceptible heart.

On the other hand, just as over-treatment with insulin may lead to cardiac complications, so also may undertreatment. The patient whose diabetes is poorly controlled is less able to tolerate ordinary cardiac stresses and if coronary sclerosis and/or hypertension is present, this patient may develop angina or other symptoms of cardiac insufficiency which may improve when the diabetes is controlled. The dehydration, hemoconcentration, decreased circulating blood volume, and shock which accompany severe diabetic acidosis are excellent predisposing factors for the development of thrombosis in sclerotic coronary vessels, and it may be difficult in some cases to determine whether a coronary thrombosis was the result or the cause of diabetic acidosis.

We may now take up some of the categories of heart disease which are likely to be encountered in diabetic patients, particularly arteriosclerotic and/or hypertensive heart disease with angina pectoris, myocardial infarction, or congestive failure. There is no direct etiologic relationship between diabetes and predisposition to rheumatic heart disease, except perhaps insofar as the uncontrolled diabetic is susceptible to streptococcal infections. Inactive valvular scarring in the absence of cardiac insufficiency presents no problem with respect to coincident diabetes. Acute rheumatic carditis with or without congestive failure, if it occurs in a diabetic, is liable to occur in the young diabetic who is notoriously more labile with respect to his blood sugar than his adult counterpart. It must be treated as any acute infection in the diabetic. The caloric value of the diet and its protein and carbohydrate content should be increased to compensate for the increased tissue breakdown resulting from fever and increased metabolic rate. Insulin dosage should be increased to prevent ketosis. The patients in this age group are usually fairly severe diabetics and may present problems in management even without the superimposed infections. However, the number of so-called "brittle" diabetics the physician encounters varies inversely with the amount of detail and industry he uses in controlling his patients. Most of these patients can be controlled with a dose of protamine zinc insulin plus one additional dose of regular or intermediate insulin prior to a meal or at bedtime, depending on the time glycosuria is severe. Often a dose of intermediate (globin or NPH) insulin in the morning and a smaller dose with the evening meal are all that will be necessary for adequate control in these severe diabetics. Urines should be tested for sugar at least four times daily at the usual intervals. Hospitalization of these patients is convenient for the physician, but because of their usually tender years, the emotional impact of separation from their families and the chronicity of the rheumatic state, the in-patient stay should be as brief as possible. If ACTH or cortisone is used as supplemental therapy, the diabetogenic effects of these hormones must be understood thoroughly and it must be anticipated that the insulin requirement will increase. In addition, the problems of associated salt retention and potassium loss may complicate the diabetes. The management of congestive heart failure developing in a diabetic with rheumatic heart disease presents problems of fluid and electrolyte balance which will be mentioned later. In this series, we had two patients with inactive rheumatic valvulitis, of whom one had congestive heart failure.

The most common problem we encounter in office practice in this field is the middle-aged or elderly diabetic with angina pectoris, although only ten patients in this group were hospitalized with this complaint. Even though the glycogen of the myocardium is well protected and ordinarily is not depleted by minor hypoglycemic episodes, we have mentioned that insulin overdosage may produce anginal pain. But inadequate diabetic control may also increase the frequency and severity of anginal attacks; therefore, very careful adjustment of diet and insulin is essential here. The usual treatment of angina with modified activity,

elimination of precipitating causes, nitroglycerine, and other measures, of course, remains the same. Caloric restriction for dietary weight reduction is particularly gratifying in obese patients in this category. The anginal pain and the clinical evidences of diabetes may subside and even apparently disappear *pari passu* with a satisfactory weight loss.

Diabetics with angina who are initially underweight are usually more severly afflicted with either or both of these disorders. Moderation in the diabetic management of these patients is advisable and too rigid control is risky. It is safer when these patients spill a little sugar occasionally; their fasting blood sugars should range between 110 and 150 mgm. per 100 cc., and they should be kept from bouncing about too vigorously for reasons already recounted, and because we cannot exclude the possibility that a *mild* hyperglycemia may contribute to optimal myocardial metabolism in the presence of a reduced coronary blood flow. These patients are best handled with a diet of high carbohydrate content (175-250 gm daily). Quantitative determination of the amount of sugar in a twenty-four hour urine specimen has served us as a very useful guide to insulin dosage. In the absence of acidosis, and after a trial of dietary measures alone, we usually prescribe protamine zinc insulin in initial dosage of 1 unit for every 1.5-2 gm of sugar excreted in 24 hours. Whenever practicable, we prefer that this insulin be administered at night before the patient retires so that if he is going to have a hypoglycemic reaction, he is more likely to have it the next morning or afternoon when he is wide awake and able to recognize and counteract it immediately. These precautions probably are advisable in all elderly diabetics, since we are justified in assuming the existence of coronary sclerosis in these patients and in attempting to prevent sharp decreases in blood sugar by excessive insulin or insufficient dietary carbohydrate.

Acute coronary thrombosis in a diabetic patient may pose a major diagnostic and therapeutic problem: it occurred in twenty-five patients in this series and was associated with moderate to severe ketosis in seven. As noted above, acidosis may be a cause or an effect of the thrombosis. The infarction is often, as in non-diabetics, the first intimation of heart disease. It may be painless and be overshadowed by the metabolic crisis which it precipitates in the diabetic state. An unexplained loss of control in a previously stabilized diabetic of susceptible age should prompt search for a "silent" infarct. There was one such instance in this series. Electrocardiographic changes diagnostic of infarction may be delayed for several days, and the early electrocardiograms may be normal. On the other hand, patients without heart disease recovering from severe diabetic acidosis may show ECG abnormalities secondary to hypopotassemia (ST segment shifts, T wave inversion, fusion of T and U waves, changes in conduction, etc.). The ST and T changes may simulate those of myocardial ischemia associated with coronary insufficiency although these electrolytically determined changes revert to normal with correction of the imbalance. Thus, the ECG may be normal in the first few days following coronary thrombosis and may be abnormal in recovery from acidosis without coronary thrombosis.

The blood sugars and urines may also be confusing. Some patients with coronary thrombosis and no background of diabetes will show mild glycosuria for the first twelve to twenty-four hours following the acute cardiac episode and may have a fasting blood sugar of 120 to 150 mgm. per 100 cc. in the morning after entry. If vomiting has been part of the clinical picture, these patients may also exhibit acetonuria. The glycosuria and hyperglycemia subside within a few hours and subsequent glucose tolerance curves may be normal. Some endocrinologists believe these patients are subclinical or latent diabetics whose compensatory homeostatic mechanisms break down under the strain of the cardiac episode. Others believe this temporary metabolic disturbance represents a stress response due to liberation of adrenalin and glucocorticoids following the intense physical and psychic trauma of the cardiac insult.

The metabolic response of the true diabetic to myocardial infarction varies with the severity of the diabetes, the severity of the infarct, the adequacy of previous control, and the presence or absence of additional complications. A mild diabetic with a clinically mild infarct may meet the cardiac crisis with barely a ripple in the degree of diabetic control. On the other hand, acidosis and coma may supervene rapidly following coronary thrombosis. Circulatory collapse with tachycardia, hypotension, cold clammy skin, and stupor may be due to the diabetic acidosis or the infarction. Respiration may be shallow or deep depending on the degree of acidosis. The clinical features in these desperately ill patients represent the combined effects of the

heart lesion and the metabolic derangement. It is essential to evaluate these two factors in their proper proportions since the treatment depends on which factor is most responsible. The dehydration, hemoconcentration, and salt depletion of diabetic acidosis call for rapid administration of fluid, electrolytes, and insulin. However, the precarious state of the myocardium dictates caution in the administration of fluids, salt, and insulin. Proper appraisal depends on clinical judgment plus laboratory aid. There is no need to reiterate here the usual principles of management of diabetic acidosis or coma except to note that these must be modified depending on the exigencies of the cardiac state. An indwelling catheter facilitates frequent (hourly) urinalysis for sugar and ketone bodies. Determinations of blood sugar, CO_2—combining power, and serum sodium chloride and potassium are most helpful as guides to efficacy of therapy and aid in early recognition of electrolytic imbalances which may be fatal in patients who seem to be recovering satisfactorily as far as hyperglycemia and ketonuria are concerned.

To avoid overburdening the circulation with excessive intravenous loads, oral intake of fluid and electrolytes should be encouraged vigorously if the patient is conscious and not vomiting. Where the intravenous route must be used, careful observation of the neck veins, repeated measurements of the venous pressure, and frequent auscultation of the lung bases will help in detecting early signs of failure.

Polemics regarding the advisability of using glucose as well as saline in instituting therapy have occupied the academicians for the past decade. In diabetic acidosis not associated with heart disease we follow the middle of the road policy of not using glucose for the first six to eight hours, or at least until a falling blood sugar indicates that carbohydrate is again being metabolized. However, in the patient with a myocardial infarct who is receiving massive doses of insulin, we believe it is wiser to protect him against sudden drops in blood sugar by administering glucose plus saline from the onset of treatment. Reports that such early administration of glucose tends to increase the incidence of hypoglycemia are countered by other reports indicating no difference in incidence.

During the period when shock is severe, the absorption of insulin from subcutaneous injection is delayed and intravenous insulin is advisable. The peripheral circulatory collapse may also militate against subcutaneous administration of fluids which ordinarily would provide a safety valve against suddenly overloading the circulation.

Treatment of the cardiac emergency follows the usual principles of rest, oxygen, analgesics, plus antihypotensive agents and anticoagulants where indicated. Morphine, otherwise the drug of choice for pain relief, has some minor disadvantages in diabetic acidosis. Its propensity for inducing vomiting in some patients may complicate therapy. The emetic effect is reduced by using atropine in conjunction with the morphine and also by the use of smaller doses repeated at more frequent intervals. Intravenous administration of 8 mgm. doses of morphine may be sufficient to control pain. The other possible disadvantage of morphine is its mild anti-diuretic effect. Neither of these disadvantages is of major signficance, but they can be avoided by the use of other analgesics readily available.

For the successful management of a patient with coronary thrombosis and diabetic acidosis, we must appreciate the possible detrimental effect of overenthuisastic treatment with fluids, salt, and insulin. The ketosis must be abolished as rapidly as is consistent with the cardiac reserve but continuous observation of the patient is essential. When the patient is recovering from acidosis, the prevention of hypoglycemia and hypopotassemia become important considerations. We have mentioned the cardiovascular effects of insulin hypoglycemia. Hypopotassemia, in addition to electrocardiographic changes, may cause tachycardia, gallop rhythm, murmurs, and hypotension. Thus, collapse during apparent recovery from acidosis may be due to too much insulin or too little potassium, either being readily correctable, or to extension of the infarction.

Congestive heart failure, including pulmonary edema, was the *dominant* manifestation of cardiac insufficiency in twenty-seven patients (31 per cent) in this diabetic-cardiac group, although several others exhibited some failure in the course of their illness. Eight patients died as a result of the congestive heart failure. The failure was due to rheumatic valvular disease in one instance, to hypertensive or hypertensive-arteriosclerotic heart disease in fourteen, and to arteriosclerotic heart disease in twelve. Whatever the etiology of congestive failure, it may aggravate the diabetes and precipitate acidosis. The increased metabolism of failure and the anorexia, nausea, vomiting, and

bowel disfunction which may follow hepatic and intestinal engorgement may cause marked interference with diabetic control. When diabetic acidosis is complicated by congestive failure, the problem again resolves itself primarily into one of fluid and electrolyte balance and the considerations are analogous to those discussed under coronary thrombosis. Digitalis is administered as indicated, attempting to avoid nausea and vomiting secondary to overdosage. Because digitalis overdosage may cause depletion of myocardial potassium, there is some theoretical question as to the advisability of digitalizing patients with hypopotassemias. However, awareness of the possibility of potassium depletion states in diabetic crises will usually avert such difficulties.

Because of the importance of the Vitamin B complex in the intermediary metabolism of carbohydate, and because of the possibility that the uncontrolled diabetic may be deficient in thiamine as a result of increased demands and loss via polyuria, Vitamin B and, in particular, thiamine should be given to diabetics in failure. It may eliminate any element of the failure which might be due to thiamine deficiency.

Primarily right-sided failure is not as immediate an emergency as pulmonary edema. When right-sided failure is complicated by diabetic acidosis, it is wiser to give sufficient fluids, salt, and insulin to eliminate the acidosis and to rely on later administration of diuretics to relieve the increased peripheral edema which may result. With severe pulmonary edema not relieved by glycosides, oxygen, aminophylline, etc., early diuresis is essential. Concurrent diabetic acidosis will be further complicated by the fluid and electrolyte loss secondary to diuresis. Hypertonic (50 per cent) glucose solutions with sufficient insulin coverage may be helpful for diuresis here. Obviously, no rule of thumb can be laid down for such cases where therapeutic measures seem to pull in opposite directions. Decisions as to whether to administer intravenous fluids and electrolytes, or to withhold salt and administer diuretics must depend on the exigencies of the moment. A flame photometer is a most helpful instrument in situations of this sort, but only in conjunction with alert physicians who are aware of the complications of the diseases under treatment and of the complications of the treatment itself.

Summary

1. Eighty-six patients with diabetes mellitus and heart disease were admitted to hospital in a one-year period.

2. These patients included twenty-five with acute coronary thrombosis and twenty-six with congestive heart failure. Nineteen of the patients died but none of the deaths was attributed to diabetic coma.

3. The problems presented by diabetic cardiacs are reviewed and their management discussed.

18254 Livernois Avenue

NEW ANTI-RHEUMATIC DRUG STUDIED

A new synthetic anti-rheumatic drug, which does not have hormonal effects of cortisone, has been shown to exert anti-rheumatic effects in gouty arthritis and rheumatoid arthritis.

Dr. Bernard B. Brodie, chief of the pharmacology laboratory of the Public Health Service's National Heart Institute, of the Department of Health, Education and Welfare, and colleagues at Goldwater Memorial Hospital and Mt. Sinai Hospital, New York, N. Y., reported on the new drug at the meeting of the Society for Pharmacology and Experimental Therapeutics in Charlottesville, Virginia, September 8, 1954.

Recently introduced, the drug G-25671 (a Geigy compound) is a derivative of phenylbutazone (Butazolidin). It exerts a less powerful anti-rheumatic effect but does not cause retention of sodium and water, thus showing that there is a possibility of eliminating at least one harmful effect of phenylbutazone. In addition, the new compound lowers blood uric acid to a marked degree by causing its excretion in urine.

This work is part of a program to develop a drug retaining the anti-rheumatic action of phenylbutazone but devoid of its side effects. A series of drugs is being screened in animals and man for anti-inflammatory activity.

If further experimentation should indicate that the new drug has such low toxicity that long-term administration is feasible, G-25671 with its combined anti-rheumatic and uricosuric effects may prove useful in treatment of chronic gout.

Cerebral Dysrhythmia and Associated Insulin Reactions

By George C. Thosteson, M.D.
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INSULIN reactions are a feature of unstable diabetes. When reactions occur with undue frequency, an analysis of their reality is essential. Some patients, having been warned about the possibility of insulin reaction, may misinterpret certain symptoms, not of hypoglycemic origin, as insulin reaction. When these occur frequently and are treated with carbohydrate in excess of dietary allotment, hyperglycemia and excessive glycosuria usually results. The patient and his physician, then, concerned about the diabetic control, decide that more, and usually needless, insulin is required.

Symptoms likely to be confused with those of a hypoglycemic state usually are "peculiar" lightheadedness, headache, transient weakness, mental confusion or visual disturbances. When these occur frequently, especially in a person whose diabetes is difficult to control, further study of the patient is warranted.

Maddock and Krall[5] classify insulin reactions into two types: (1) *adrenalin-like*: nervousness, tremors, weakness, hunger, tachycardia, palpitation, sweating, and pallor; (2) *central nervous system type*: headache, nausea, vision, and speech disturbances, slow reactions, mental confusion, personality changes, anxiety, depression, twitching, crying, masked facies, convulsions, and coma.

It will be noted that the symptoms referred to above, mistaken for those of insulin reaction, simulate those of the central nervous system type. Some of these are also seen in petit mal epilepsy.

Hypoglycemic reactions due to a relative excess of insulin in the diabetic follow a fairly consistent pattern. As a rule, they are relieved, quickly, by ingested carbohydrate (soft drink, syrup, candy, food, et cetera). The time of occurrence of true insulin reaction also follows a pattern, relatively constant for the type of insulin being used. Thus, reactions from protamine zinc insulin tend to occur in the early morning hours; those from globin and NPH in the late afternoon; those from mixture of regular and PZI either before lunch or supper; and, those from lente insulin are reported occurring in the early evening.[5] There is usually a history of a delayed, light or omitted meal, excessive exercise, or possibly accidental overdose of insulin. A relatively low blood sugar is usually obtained at the time of the reaction. Thus, a careful history as to the time of occurrence and the events preceding the reaction is essential and often revealing. When a bizarre pattern is elicited, usually in an uncontrolled diabetic, one is justified to question the hypoglycemic origin of the symptoms.

Greenblatt, Murray, and Root[3] state that it is not known whether repeated insulin reactions can produce abnormal cerebroelectroactivity. On the other hand, Himwich[4] states that profound hypoglycemia can depress brain activity to one-quarter its normal rate. Greenblatt and his associates, utilizing electroencephalograms, report that epilepsy is no more common in the diabetic than in the non-diabetic individual. These authors also report on the incidence of cerebral dysrhythmia in forty diabetics. Fifty-one per cent of diabetics with frequent insulin reaction were found to have abnormal electroencephalograms.

Fabrykant and Parcella[1] showed the coexistence of spontaneous hypoglycemia with electrocerebral dysfunction as exhibited by the electroencephalogram and suggested it be regarded as a clinical entity. This group[2] continued their studies with labile diabetics. Of seven labile diabetics reported in this study, only one had a normal electroencephalogram. Furthermore, in those not responding to carbohydrate, the reactions occurred at relatively high blood sugar levels. This group responded to anticonvulsant therapy.

The following group of patients were chosen for electroencephalographic study because of frequent, yet bizarre, "insulin" reactions. In most, the diabetes was moderate to severe in type. All of the tracings were taken and interpreted by A. J. Derbyshire, Ph.D., at Harper Hospital, Detroit. The tracings were graded on a scale of one through five, where one is normal and five is diagnosably abnormal.

Case Reports

R. M., a young woman, aged twenty-one, was first seen in ninth year of diabetes and observed through 1951, sixteenth year of disease. Diabetes was discovered 6 months after a head injury (struck by golf ball). Head-

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ache and insulin reaction were frequent complaint. Diabetes was difficult to control and insulin ranged from 64 to 90 units daily. Patient presented slow speech, grinning and grimacing facies, nystagmus, and diminished reflexes. Electroencephalogram in 1944 was grade three (unstable normal—"no evidence of local cerebral lesion or convulsive seizures"). When repeated in 1947, tracing graded three identical with previous pattern. An occasional low blood sugar (50 mg. percent) was obtained and confirmed an alleged hypoglycemic reaction. However, the majority of blood sugar estimations were high and glycosuria was the rule. It was believed this patient had either local brain trauma (not elicited by EEG) or insulin encephalopathy.

R. O'C., male, had onset of diabetes at the age of twelve following a head injury (fell, striking head on stone steps). Diabetes was unstable, with a blood sugar range of 90 to 266 mg. per cent. His average insulin dose was 50 units. There were many reactions and several episodes of ketosis. Electroencephalogram was grade 3.

W. F., a man, aged forty-eight, had diabetes of 14 years' duration. He also had a history of head injury (golf ball). Prior to this injury, however, diabetes was unstable with many reactions progressing to a mild convulsive state. Electroencephalogram was grade 5. Although this patient would not admit benefit from dilantin therapy, there were fewer insulin reactions reported while taking this drug.

S. S., a man, aged twenty-five, had diabetes of 12 years' duration. He had many severe headaches and many reactions. Diabetes was unstable with several episodes of ketosis. There was no history of head trauma. Electroencephalogram was grade three with "brief episodes resembling seizure patterns." Definite decrease in headache and frequency of insulin reactions on dilantin therapy. Diabetes stabilized remarkably after his marriage. He no longer takes the anticonvulsant medication.

R. H., a man, aged thirty-five, reported diabetes of one year's duration. He had stable control on NPH insulin. While at a camp in northern Michigan he was seized with a "severe reaction" at noon during which he fractured a thoracic vertebra. This was the only episode of this sort or anything suggestive of insulin reaction since the onset of his diabetes. The time of the "reaction" was not consistent with the type of insulin used and there had been no skipped meals or unusual exercise. A description of the attack written by one of the fellow campers cast doubt that this was an insulin reaction. Details suggested a classical convulsive seizure. Electroencephalogram was grade 3. Because this was the only attack experienced by this patient and since his general health and diabetic control continues to be good, no anticonvulsant treatment has been instituted.

B. B., a fourteen-year-old girl, had diabetes of four years' duration, a severe type requiring 76 to 98 units of insulin. She had constant hyperglycemia and glycosuria, yet she reported many reactions for which she took a carbohydrate food. The "spells" consisted chiefly of nervousness and a peculiar feeling in her head. The frequency of the "spells" aroused suspicion as to their nature. It was obvious that the poor control was related to excessive food. Electroencephalogram was grade 5. Milontin was started in May 1954, and no "spells" have occurred since. The patient not only feels better but is having less glycosuria.

Summary

Attention is called to the existence of disturbed brain activity as a factor in alleged insulin reactions in diabetics.

This should be considered when "reactions" occur with undue frequency and are not consistent with the typical pattern of hypoglycemia.

Diabetics having frequent reactions should have the benefit of encephalographic study.

Anticonvulsant therapy minimizes or eliminates the symptoms and assists in obtaining better control of the diabetes.

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1139 David Whitney Bldg.

An early lesion of lung cancer produces no symptoms and reveals itself as a silent shadow on the x-ray film or through cancer cells in bronchial secretions on cytologic examination.

Cancer of the breast is three times as common in daughters of women with breast cancer as in the general population, and in the daughter the disease develops approximately ten years earlier than in the mother.

Problems of the Diabetic Patient Requiring Surgery

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MODERN ADVANCES in the treatment of diabetes mellitus have presented the physician with unusual opportunities for the control of this particular disease. That progressive success in the metabolic management of diabetes is being encountered, is evident not only in the increased number of patients being treated, but in the increased number of elective surgical procedures being performed upon this group of patients. The number of persons who have survived with diabetes for a period of twenty-five years without demonstrable complications is also increasing, Joslin[5] reporting one such case in 1948 and thirty-four in 1952. Furthermore, it is becoming more evident every year, since the advent of insulin therapy, that if the diagnosis can be made sufficiently early, the management is available to prevent the development of the complications which lead to the statement that, the life expectancy of a diabetic is three-fourths that of a comparable non-diabetic.

Opportunities for Diagnosis

The very nature of one group of complications in diabetes should afford the attending physician an opportunity for immediate suspicion of diabetes and establishing the diagnosis. The incidence of diabetes in this country is such that five million persons are expected to develop the disease before death. For this reason, a knowledge of these very same complications should become a part of a non-diabetic patient's education by his family physician, a problem not unlike that of cancer detection. The group of complications which are referred to, are those associated with infections and a peripherally diminished blood supply. These most commonly are neck carbuncles, multiple skin furnucles at any location, infections about the genitorectal region such as rectal abscesses or pruritus vulvae, and the consequences of ischemic changes in the feet such as spontaneous gangrene or toe infections following minor trauma. These complications, which are associated with a decreased resistance to infection and tend to be peculiar to diabetics, are by their very nature demanding of the patient that he seek eventual medical care. If only he could be educated to seek such attention immediately and not wait days, untold damage could be avoided. Unfortunately, it must be mentioned that as in the treatment of skin cancers with salves and ointments without benefit of a biopsy and microscopic tissue diagnosis, there is local treatment of infections in undiagnosed diabetes without the benefit of urinalysis. Complete correction of this condition along with continued diabetic education of their patients rests with all physicians and will contribute greatly to the next advances in this controllable disease.

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General Hygienic Care

When one considers that the median age of onset of diabetes in males is forty-five years and in females is fifty years, it is evident that the problems of a great number of these patients are accentuated by those which are usually presented after the sixth decade. One of the most conspicuous of these problems in the diabetic is the progression of peripheral occlusive arterial disease in the lower extremities. Education of the patient in the application of proper hygienic and prophylactic measures is of primary importance and again the responsibility of all physicians. These measures are worthy of repetition and should include the following:

1. Cautioning the patient against unnecessary compression of the major arteries as occurs when wearing encircling garters or sitting with the legs crossed over the knees.

2. Wearing loose-fitting wool socks which are changed daily and also wearing broad-toed shoes, which have been carefully fitted.

3. Administering daily foot care which includes soaks in warm water which is not over ninety-five degrees Fahrenheit as determined by a thermometer. The soaks are followed by drying with cotton pledgets dipped in 70 per cent alcohol and finally the skin is lubricated lightly with lanolin. Nails should be trimmed in a transverse manner and attention given to corns and calluses by using sterile techniques when trimming followed by the proper application of pressure relieving pads. A weekly foot inspection by another member of the family is helpful.

4. Exertion of the utmost caution in avoiding trauma to the bare feet by always wearing shoes. Accidental trauma against furniture, notably bedposts while stumbling in the dark is a common story after hospitalization for a cellulitis of the foot.

5. Care in avoiding the application of hot water bottles or any other method of excessive heating. This is especially important since the diabetic with peripheral vascular impairment is unduly sensitive to cold and will be naturally inclined to apply external heat. The locally increased metabolism of the warmed tissues cannot be supported by the impaired arterial supply to these tissues and the cumulative effects of ischemia supervene.

Acute Abdominal Surgery

The surgeon who is evaluating a diabetic for possible surgery has several problems which set his patient apart from the non-diabetic. The diagnosis of an acute abdomen may be confusing in one of two ways. First, the acidotic state complicating uncontrolled diabetes may be accompanied by nausea, vomiting and abdominal pain simulating an acute surgical abdomen. This tends to occur more commonly in children. Secondly, the signs and symptoms of a given inflammatory abdominal disorder, such as appendicitis may become diminished in the diabetic to the point where the correct diagnosis is unduly delayed or not made. Furthermore, in such cases the severity of the inflammatory condition with a failure in local tissue response is remarkable. Appendicitis in a diabetic is commonly accompanied by gangrene and a general retardation of the walling-off process. Consideration of these factors should make the surgeon more aggressive in his approach to a diabetic who presents a vague picture simulating appendicitis, and, earlier operation is indicated. The following case report serves to illustrate some of these points.

Case Report

W. M., a twenty-one-year-old Negro man, was admitted to Detroit Receiving Hospital September 25, 1951. He complained of lower abdominal pain of one-day duration, which was not localized and tended to be more severe on the left than on the right. Anorexia and vomiting occurred after the onset of the pain. There was no change in bowel habits and the patient noted dysuria since the onset of the abdominal complaint. The past history was that of diabetes mellitus since the age of eleven with no episodes of acidiosis or insulin reactions. For the past year he had been taking 80 units of NPH insulin and hadn't tested his urine for several months. Examination revealed the patient to be in no remarkable distress. The temperature was 100 degrees F., and the pulse was eighty-eight. The findings were generally negative except for the abdomen which presented minimal tenderness in both flanks and no muscle spasm. The WBC was 12,500 with 85 per cent neutrophiles. The urine showed three plus sugar and acetone, whereas the blood sugar was 152 mgm/100 cc. The diagnosis in addition to diabetes mellitus was possible urinary tract infection or possible appendicitis. Therapy was started consisting of regular insulin, and intravenous saline followed by a diabetic diet and insulin to reaction.

The following day the patient was slightly lethargic with a temperature of 100 degrees F. A roentgenogram of the abdomen revealed multiple dilated loops of small bowel in the upper left abdomen with a diffuse haze consistent with a low jejunal obstruction and peritonitis. Abdominal examination again revealed no muscle spasm nor superficial tenderness. Rectal examination was negative except for a slightly enlarged, soft prostate gland. The diagnosis of appendicitis was not forthcoming, so an abdominal paracentesis was done in both lower quadrants and yielded a pink-yellow fluid which on smear was packed with pus cells. Appendectomy was immediately performed and on opening the peritoneal cavity, free exudate was encountered. A ruptured appendix was found with no evidence of any walling-off process. Subsequently, the patient was treated with long tube suction for seven days and antibiotics. The only complication was a wound abscess drained on the seventh post-operative day and he was discharged after a hospitalization of twenty-four days.

Elective Surgery

The problem of elective surgery for the diabetic has become resolved by the concept that if the diabetes has been under good control the indications for the elective surgery are the same as for a non-diabetic. There are several reasons which will combine to cause a yearly increase in the number of diabetic patients who are being evaluated for elective major and minor surgery. One is the steady increase in the number of diabetics who are successfully approaching the decades in which the degenerative diseases and carcinoma are more likely to become manifest. Secondly, the increased medical supervision of the lives of these diabetics will bring forth the diagnosis of carcinoma and other surgical conditions earlier and in greater numbers in comparison to the non-diabetic population which does not submit to routine physical examination. Indeed, the thought has been expressed that the efficiency and thoroughness of diabetic care may one day usher more of these people into the cancer-occurring ages than will proportionately occur in the non-diabetics.

The evaluation of a patient for major resection

surgery today is performed with the thought in mind that the operation, although planned for two to three hours, may take two to three times as long and involve variable levels of peripheral circulatory depression and fluid losses. Certainly the preoperative cardio-pulmonary-renal status is a well recognized criteria for such an evaluation. However, in addition, there is increasing evidence that the response and the tolerance of the organism to the shock state is vitally reflected in the status of the liver. Thus, a theory[1] of shock has been advanced based on the production of a vaso-depressor material (VDM) in the anoxic liver. Such an iron-containing protein substance[7] is demonstrable in the circulation of laboratory animals which have been subjected to controlled bleeding down to shock levels. It is capable of depressing the sensitivity to epinephrine of the precapillary sphincters, thereby giving rise to peripheral vascular dilatation, and if progressive, a state of irreversible shock. Furthermore, it has been demonstrated[2] that following controlled bleeding to a state of irreversible shock in dogs, as noted by a failure to respond to transfusions, the mortality is nearly 100 per cent. If treatment following a similar bleeding procedure consists of cross-perfusing the splenic vein of the shocked animal with the blood of a healthy animal, survival occurred in eleven of twelve dogs. On the other hand, cross-perfusions into the systemic circulation of animals in irreversible shock resulted in the death of fifteen of seventeen animals. Other methods of increasing the arterial blood supply to the liver such as the administration of bile salts,[4] or the anastomosis of the splenic artery to the splenic vein[3] have also resulted in improved response to shock and a lower mortality in the experimental animal.

The inference that adequate glycogen stores in the liver of a diabetic will increase the tolerance to the shock state has not been experimentally studied. However, a certain degree of liver dysfunction occurs in diabetes and apparently increases markedly with the increase in the complications of diabetes such as obesity, recurrent coma, tuberculosis, gangrene and vascular complications. Thus, in a series of 148 patients,[6] 39 per cent had abnormal liver function tests and it was noted that the sex, age and duration of the diabetes apparently had no relation to this abnormality. However, there was some increase in dysfunction as the total insulin requirement increased. The observation was made that the nutritional deficiencies which resulted from the effort to limit glycosuria by a low carbohydrate contributed to liver disease. It would seem pertinent, therefore, to re-emphasize the necessity for maintaining a proportionately high carbohydrate intake covered with insulin in the diabetic preoperatively in the effort to maintain maximum glycogenesis. Further studies along this line would seem to be worthwhile.

Anesthesia

The increased understanding of the pathological physiology of diabetes has led to a more logical and satisfactory handling of anesthesia for the diabetic patient. In general the diabetic patients may be divided into one of two types: (1) The "juvenile" diabetics who have the characteristics of being underweight, are very sensitive to insulin, likely to go out of "control" easily and develop acidosis. These patients usually have no vascular complications. (2) The elderly obese diabetics who are relatively insensitive to insulin and have serious complications. The vascular complications are generally of more importance in these patients than the disturbance of carbohydrate metabolism. The anesthetic problem is therefore, somewhat different according to the type of diabetic patient being handled.

Diabetic patients for elective surgery should be under the best possible control before being brought to operation. This includes adequate pre-operative diet and establishment of the daily maintenance dose of insulin. On the day of surgery the patient should receive the proper dose of insulin, and since the patient will be unable to eat his regular diet that day, the insulin should be covered with glucose by intravenous infusion. One method of accomplishing this is to give 2 gms of glucose for each unit of insulin, but it is better to treat each patient as an individual with the following method. The patient is given one-fourth of the total daily dose of regular insulin which is covered with 50 gms of glucose intravenously, then fractional urines are checked every four hours and insulin administered as indicated. The diabetic patient for emergency surgery must be handled somewhat differently. Blood glucose, CO_2 combining power and pH should be checked, and the urine sugar and ketones determined. If at all possible, surgery is delayed until the treatment of the diabetes is under way. For the patient in diabetic coma who must have immediate surgery, the following plan is carried out. Intravenous saline is started and if

the patient is in shock, plasma or blood is given. One hundred units of regular insulin in 1000 cc. of 5 per cent glucose is started followed by 100 units of regular insulin given subcutaneously. A catheter is placed in the bladder facilitating an hourly check of the urine and insulin is administered according to the urine sugar. If immediate surgery is necessary the above treatment is carried out during the operation. Gastric distention is a frequent complication of diabetic coma and a tube should be passed into the stomach to remove the gastric secretions. The treatment outlined above will allow the diabetic patient to receive anesthesia with relative safety.

The particular anesthetic agent or technique chosen will make little difference if administered skillfully and a clear understanding of the problems involved are kept in mind. Intelligent choice of the proper anesthetic agent and technique will depend upon the recognition of the type of diabetic patient, i.e. "juvenile" or "elderly obese," the general status of the patient and the site and magnitude of the surgery.

Of the inhalation agents, cyclopropane, nitrous oxide, and ethylene produce no disturbance of carbohydrate metabolism or acid-base balance. The hyperglycemia and acidosis attributed to ether have been found to be largely due to faulty administration, and if correctly used, ether should cause insignificant disturbances of metabolism. The ultrarapid intravenous barbiturates and curare drugs can be used as safely in the diabetic patient as in the non-diabetic patient. All of these agents may be administered with minimal effects on the cardiovascular system. The major disadvantage of inhalation or intravenous anesthesia is the postoperative nausea and vomiting that may occur and prevent the patient from immediately resuming his normal diet.

Regional anesthesia produces no effects on carbohydrate metabolism or acid-base balance; nausea and vomiting are usually minimal and the patient can immediately resume his normal diet. Nerve blocks, epidural and spinal anesthesia can be used with excellent results in proper selected diabetic patients. The major disadvantage of epidural or spinal anesthesia is the possibility of sympathetic paralysis and resulting hypotension proportional to the number of sympathetic fibers blocked. Thus the danger of severe hypotension will be greater with high epidural or spinal anesthesia, than when only a low level of anesthesia is obtained, and it can be seen that while spinal anesthesia might be ideal for amputation of a gangrenous foot in an elderly diabetic, spinal would be hazardous for upper abdominal surgery. Consequently, the selection of the best anesthetic agent for the diabetic patient will depend upon a complete knowledge of the properties of the various anesthetic agents and a clear understanding of the type of diabetic patient to be anesthetized.

Summary

We would like to point out that of all the surgical problems presented by diabetic patients, we have elected to restrict our discussion to those in which further advances can most likely be anticipated. This includes the promotion of the diagnosis of diabetes, the improvement in hygienic measures to the extremities, the application of accurate abdominal diagnosis and a recognition of the eligibility of a well-controlled diabetic patient for the majority of surgical and anesthetic procedures.

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1401 Rivard

Enormous and gratifying progress has been made in prolonging life of cancer patients in usefulness and comfort by chemotherapeutic, endocrinological, surgical and radiological palliative measures.

Since prognosis of intraoral cancer usually depends on early diagnosis, any sore in the mouth existing more than four to six weeks should have adequate biopsy to determine whether it is malignant.

Some Current Concepts of Etiology and Pathogenesis of Diabetes Mellitus

By Louis Jaffe, M.D.
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AS IN ALL diseases of major importance the amount of data on diabetes mellitus and carbohydrate metabolism is increasing steadily. In part, experimental work appears to be readily coordinated with clinical diabetes and in other instances the relationship is less clear and even contradictory. At any rate, etiology is still not definitely proven, although associated factors such as heredity and obesity are well established. Of the many modes of attack on this entity the following includes those that appear to be of particular interest in relation to clinical diabetes.

Experimental diabetes can be produced in a number of ways. The most obvious is total or subtotal pancreatectomy. This is of little importance in man except for rare cases such as extensive pancreatic invasion by neoplasm or hemosiderosis.

Another and rather intriguing method is the administration of alloxan, which destroys the function of the beta or insulin producing cells in about five minutes. This is a chemical reaction and does not work through the pituitary or adrenal glands. Other substances such as dehydroascorbic acid act similarly. Alloxan is related chemically to uric acid, dialuric acid being an intermediate product. However, disturbances in uric acid metabolism have not as yet been shown to play an important role in human diabetes. In fact it has usually been felt that, as in some animal species, human islet cells are resistant to alloxan. Recently in an individual with a pancreatic islet cell adenoma, administration of alloxan destroyed normal islet cells, but left the adenomatous cells intact. The place of alloxan in human diabetes is therefore still unsettled.

An interesting and possibly clinically significant sidelight should now be noted. Alloxan diabetes can be prevented by glutathione, cysteine, BAL, and other agents. Since 12 per cent of insulin is cystine, an oxidation product of cysteine, and since glutathione also contains cysteine, there may exist an enzymatic "competition" between insulin and glutathione for this component. In some animals with low glutathione content induced by deficient diet uric acid administration can produce diabetes. These and other related facts probably raise more questions than are answered. One may conjecture whether alloxan can be formed from uric acid in the human and whether it interferes with the absorption of cystine into the insulin molecule. From the clinical standpoint some students have felt that a diet high in protein including cysteine and methionine could therefore play a role in preventing diabetes. At any rate, in human diabetes there appears to be no important variation in uric acid or glutathione. This does not apply to certain diabetic states such as seen in steroid diabetes.

Anterior pituitary substance has long been known to be important in carbohydrate metabolism and to be capable of producing permanent diabetes. More recently its growth factor, somatotropin, has been shown to exert a similar effect. Our knowledge of this latter fact has expanded greatly, and will be discussed separately. At this time we know that either whole anterior pituitary substance, or somatotropin, produces an early reversible change in the pancreas (idiohypophyseal phase of Young) characterized by hydropic degeneration of the islet cells (glycogen deposition), and which can go on to a permanent (metahypophyseal) diabetic phase if administration is continued. In the case of the whole anterior pituitary extract there is early an increased overproduction of glucose (increased gluconeogenesis) and later decreased insulin production, probably due to overwork and exhaustion of the islet cells. Peripheral tissue inhibition of carbohydrate metabolism is also effected.

Removal of the pituitary in experimental diabetes is followed by marked amelioration of the diabetes, increased sensitivity to insulin, and inability to maintain normal carbohydrate stores. This has its human counterpart in those rare cases wherein diabetes has become less severe or "cured" with the onset of pituitary cachexia. Since the original experimental work was done with crude anterior pituitary substance, it is problematical how much of the effect was due to ACTH which produces steroid diabetes, a so-called diabetic state, and how much to somatotropin which appears to be more truly diabetogenic.

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Prolonged hyperglycemia, created by continuous administration of glucose, can also lead to permanent diabetes probably in a manner similar to that noted above i.e. by ultimate exhaustion of the islet cells. The question arises whether hyperglycemia is the important factor in both instances. However if this is so it is difficult to explain why human uncontrolled diabetes so often does not increase in severity. Furthermore the appearance of certain complications such as Kimmelsteel-Wilson disease is associated with reduction in severity of the diabetes. Lukens states that one cannot say flatly that hyperglycemia *per se* is or is not injurious. Torgeson's recent work showing that insulin reverses the early hydropic changes in the islet cells even in the continued presence of hyperglycemia further confuses the issue. At any rate hyperglycemia appears to be an essential factor in pituitary diabetes since it can be prevented not only by insulin but by phlorhidzin which simply prevents glucose reabsorption by the renal tubules thereby inducing glycosuria and lowering the blood sugar.

Thyroid substance can under certain conditions produce experimental diabetes probably by increasing total metabolism including insulin requirements, and by increased gluconeogenesis. Although diabetics with thyrotoxicosis are improved by restoration to a euthyroid state, it has not been shown that the thyroid gland plays an important etiologic role in human diabetes.

Certain other abnormalities are associated with "temporary" diabetes or diabetic states as contrasted with true permanent diabetes as seen clinically. Products of the adrenal cortex can create such states. In experimental animals, adrenal cortex has a pituitary like effect by increased gluconeogenesis and by effecting decreased peripheral utilization of glucose. One of the effects noted is a drop in glutathione and an increase in urinary uric acid, as seen in ACTH administration. This is of interest again in relation to the uric acid-alloxan experimental work described above. As with the pituitary gland, removal decreases the severity of the diabetes. Human diabetics developing Addison's disease show marked improvement in their diabetes, and surgical removal of tumors of the cortex have been reported to have effected "cures" in some instances.

Analysis of some of the components of the adrenal cortex has shed further light on its relation to carbohydrate metabolism. Some of the C-11 steroids accelerate gluconeogenesis whereas desoxycorticosterone apparently has to do with maintaining normal absorption of glucose from the gastrointestinal tract. Recently Stetten has shown that cortisone increases the rate of glucose production from non-carbohydrate sources six to seven times. Steroid diabetes is characterized by a relative insensitivity to insulin and a negative nitrogen balance and one may ask at this point whether the deleterious effects of stress, emotional or otherwise, in diabetics is not a form of temporary steroid diabetes and whether stress may not by this mechanism be a precipitating factor at the onset of the disease. Since elevated blood sugar in steroid diabetes usually falls to normal simply by fasting, treatment of behavior problems may have a solid physiologic basis in controlling many labile diabetics.

Obesity has long been known to be associated with and precede clinical diabetes. Experimentally the production of certain hypothalmic lesions lead to obesity by stimulating what may be an "appetite center." This type of obesity is frequently associated with diabetes. The glycosuria seen in head injuries, Claude Bernard's piqure and so-called emotional glycosuria, all probably reflecting hypothalamic dysfunction, again presents a question rather than an answer particularly as to whether the hypothalamic lesions create their effect through the pituitary. Certainly during the process of becoming obese the high food intake puts a functional strain on the islet cells, but since glycosuria frequently disappears with weight loss, obesity cannot be included as a basic etiologic factor. Many individuals obese for years never develop diabetes, so that as with hyperglycemia the predisposing effect of obesity *per se* is still obscure.

Although the liver is of paramount importance in carbohydrate, fat, and protein metabolism, human diabetes is not associated with clear-cut changes in liver functions. Actually most of the liver must be destroyed before significant alterations in carbohydrate metabolism occur. It is therefore unlikely that the liver *per se* is important as a diabetogenic factor. Similarly infection, important as an aggravating and perhaps a precipitating factor, is not in itself diabetogenic.

Aspects of Insulin Action

No discussion of pathogenesis would be complete without awareness of more recent ideas regarding the action of insulin. This complex subject is not yet resolved in spite of much new information indicating the wide scope of its effects. Best in a

recent review presents its role as a central anabolic hormone, lack of which leads to failure of protein, fat, and carbohydrate synthesis and storage, as well as loss of phosphorus, potassium, sugar, nitrogen and ketones from the body. Most ingested glucose (80 per cent) is oxidized, the remainder being converted to fatty acids (lipogenesis) and only a small per cent to glycogen. Stetten showed in 1944 that diabetics could not form fatty acids from dextrose.

The actual site of insulin action is still not settled in the minds of many students. Cori's postulate that this occurs at the level of the action of the enzyme hexokinase which accelerates the necessary conversion of glucose to glucose-6-phosphate still has support. More recently, it has been stated that the essential function of insulin is simply to facilitate or permit passage of the glucose molecule across the cell membrane thus allowing normal carbohydrate metabolism to proceed. There is further evidence that insulin itself enters the cell to participate in intracellular metabolism. This is an attractive theory and would simplify many of the metabolic problems now existing. An apparent anomaly is the fact that work performed by muscle utilizing glucose for energy does not require insulin in many instances.

We note that liver slices from a diabetic animal are not restored to normal in relation to glucose oxidation or lipogenesis by the addition of insulin *in vitro*. If, however, the animal had been previously treated with insulin, then addition of insulin to the *in vitro* tissues was effective, indicating that some intermediary product of normal carbohydrate metabolism is necessary for glucose oxidation and lipogenesis, i.e., that these processes require an active metabolism of glucose with insulin. Cholesterol formation is not interfered with in the *in vitro* studies of tissues from animals not so pre-treated and even increased over normal. The clinical implication of hypercholesterolemia and its possible relation to atherosclerosis is evident. The effect of insulin on glycogen storage is known and its enhancement of glucose oxidation has been directly proven by recent studies using labeled, i.e., radioactive C-14.

Best states that insulin is essential to the protein anabolic effect of growth hormone (somatotropin). Somatrotropin given to animals produces an increased compensatory secretion of insulin, and diabetics given somatotropin need more insulin for control and to prevent a negative nitrogen balance. The importance of insulin in protein anabolism is further seen in the remarkable findings by Best and Salter that even in hypophysectomized animals, and therefore in the absence of somatotropin, insulin can qualify as a growth hormone.

Somatotropin

At this point it may be well to note another important substance capable of producing experimental diabetes as can anterior pituitary extract. Perhaps the best known action of somatotropin in this regard is peripheral inhibition of carbohydrate metabolism, increasing the need for insulin. Insulin is therefore necessary both to prevent a diabetic state and to allow protein synthesis by somatotropin. In fact both hormones may well keep a balance of carbohydrate metabolism and protein synthesis as needed by the body. Parenthetically the so-called available glucose derived from protein is now thought to be nearer 90 per cent of the original protein rather than the time-honored 58 per cent.

Somatotropin produces diabetes only in certain species and in certain stages of growth. Animals capable of growth or lactation are relatively resistant. Adult animals incapable of either become diabetic. Young postulates that somatotropin may therefore be important in human diabetics. An increased amount over a long time, not enough to produce acromegaly, but sufficient to produce changes in protein and carbohydrrate metabolism may lead to diabetes. The oversize babies of women who *later* develop diabetes may be explained on this basis. It has been thought that diabetes, including arteriosclerosis and coronary disease, may be only one phase of a state of excess of growth hormone. Since different species of animals react differently to growth hormone as do different ages and sexes, so may human individuals differ, so that diabetes and arteriosclerosis including coronary disease are seen as different phases of one entity the full picture of which is acromegaly with diabetes. This is a highly theoretical but intriguing concept based on recent studies of somatotropin.

Pre-Clinical Diabetes

That the complications of the disease may actually be a part of the disease has long been suspected. In spite of the desirability of good control of diabetes we do not know that this prevents complications. Recent work indicates that vascular changes may actually precede clinical diabetes. Microscopic changes in the capillaries and ground substance, probably the earliest vascular changes,

are seen in diabetics. They are also seen in healthy children of diabetic mothers—25 per cent of these children had abnormal glucose tolerance curves. Evidence that a potent endocrine factor is present, probably somatotropin, is seen in the findings that children of diabetic mothers have tall stature, obesity, advanced bone and dental development, a high incidence of diabetes and an increase in urinary seventeen ketosteroids—all suggesting increased pituitary activity.

Diabetic children seen at the onset of their disease show a similar picture all of which is indicative of early hormonal change and leads one to feel that the disease probably precedes disturbance in carbohydrate metabolism. Certainly heredity is the most important predisposing factor acting as a simple mendelian recessive. Since it is thought that each enzyme has its own gene, perhaps a gene involving enzyme systems related to insulin or somatrotropic function, or both, is the basic defect.

Juvenile versus Adult Types

Juvenile diabetics, of course, show many differences from adults. Wrenshall found that diabetics with an onset before age twenty-three (cessation of growth) showed marked pathology in the pancreas, with a low insulin content—3 per cent, as compared with the "maturity onset" group (after twenty-three) with fewer pathologic findings and insulin content of 50 per cent. However any relationship of these findings with growth hormone would be entirely theoretical.

Himsworth, with a great deal of clinical support, divides diabetics into: (1) an insulin sensitive group due to insulin lack—usually young, thin, nervous and unstable severe diabetics, and (2) a more obese insulin insensitive older group which does not need insulin to survive. This latter group resembles the idiohypophyseal phase of pituitary diabetes and usually has some insulin in the blood compared with little or none in group one (Bornstein and Lawrence).

Certainly it is clear that at least in the younger group, extra-pancreatic factors, endocrine or otherwise exist. Insulin lack is the basic factor, but it may be absolute as in the pancreatectomized man who requires forty units a day to restore his insulin needs, or relative as in the juvenile diabetic who needs 150 or more units because of extra-pancreatic factors. These latter factors include increased gluconeogenesis, chiefly due to pituitary overfunction, a possible anti-insulin substance, or peripheral destruction or inactivation of insulin, e.g., somatotropin. One such anti-insulin factor is ascribed to the alpha cells of the pancreas. Although such a substance may exist, its role in blood sugar homeostasis is not well defined nor is its site still well established since Volk obtained the hyperglycemic factor from pancreatic substance in which the alpha cells had been destroyed.

Summary

In this brief and necessarily incomplete review it is noted that there are many similarities between certain phases of experimental diabetes and human diabetes, particularly in regard to pituitary hyperfunction. Some of the apparent discrepancies such as the relation of hyperglycemia to the severity and origin of the disease and the role of uric acid need further clarification. The mode and site of action of insulin is not considered as settled by many students, but its importance in protein and fat synthesis as well as on growth itself is expanding. Similarly, the value of growth hormone in carbohydrate metabolism and possibly in human diabetes is becoming evident, and may yet play a dominant role.

A unifying concept of the etiology and pathologic physiology in diabetes mellitus does not yet exist. Insulin lack, absolute or relative is, of course, a basic essential not only in carbohydrate metabolism but in fat and protein synthesis as well. There is evidence that, because of its hereditary background, the disease may be present prior to overt or easily recognized disturbances in carbohydrate metabolism as seen in apparently healthy children of diabetic parents. Obesity, a so-called predisposing cause, may indeed be a part of the disease, due to pituitary or hypothalamic aberrant function. There is strong evidence that vascular complications are not complications at all but a grosser phase of the syndrome beginning early and even preceding clinical diabetes. Since disease entities in general frequently do not always show a full blown picture, it is reasonable to assume that errors in carbohydrate metabolism are only one facet of the disease taken as a whole. The rather bold concept that obesity and arteriosclerotic phenomena including coronary disease are similar facets even when seen alone deserves consideration.

Diabetes is a key disease in that explanation of certain degenerative processes such as arteriosclerosis may well follow clarification of the pathophysiology of diabetes. Recent experimental work lends support to this concept.

10 Witherell

Present Concept of the Action of Insulin

By Sander Paul Klein, M.D.
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THE STORY of insulin begins in 1889. Von Mering and Minkowski reported the development of diabetes mellitus in dogs following complete pancreatectomy.[20] This historic work localized the source of the substance, the deficiency of which resulted in the devastating disease, diabetes. Thirty years passed and in the summer of 1921 Banting and Best demonstrated a constant and dramatic lowering of the blood and urinary sugars following the injection of a pancreatic extract into depancreatized dogs.[2] More highly purified insulin was obtained by extraction of the pancreatic glands of cattle with acid alcohol by MacLeod and later Collip.[6] Insulin was finally crystallized by Abel.[1]

Although a potent substance was now available in a highly purified form which could correct the severe metabolic alterations produced by pancreatectomy, certain questions loomed large and unanswered. At what point in the body chemistry did insulin act? From the physicochemical viewpoint, what did insulin do? During the past fifteen years many attempts have been made to answer these questions. At different times various workers have suggested that insulin influences the following reactions, i.e., the citrate cycle,[13] the synthesis of fat from two and three carbon fragments,[19] and the production of glycogen from glucose.[3] However, none of these theories accounted for the fact that insulin caused both an increased production of glycogen as well as an increase in the utilization of glucose. The work of the Coris[7,17] was compatible with the known facts. The phosphorylation of glucose (glucose-6-phosphate) is the means by which it enters the metabolic pool. This is accomplished by hexokinase in the presence of ATP (adenosine triphosphate). These workers postulated that insulin activates hexokinase by releasing it from the inhibiting effect of the anterior pituitary (Fig. 1).

Evidence soon began to accumulate indicating that the Cori hypothesis was not thoroughly acceptable. It is well known that the hypophysectomized animal shows extreme insulin sensitivity. If the action of insulin was to inhibit the anterior pituitary, in an animal deprived of this gland, insulin should have no effect. The hexokinase system is present in practically all cells of the animal body. Nonetheless, in the absence of insulin in the depancreatized animal the absorption of glucose by the intestine,[8] its reabsorption in the kidney tubules,[11] and its utilization by the central nervous system remain normal.[12] Finally, the original work of the Coris has been difficult to duplicate,[4,5,18] and the finding of decreased hexokinase activity in the tissue of diabetic animals has not been confirmed.

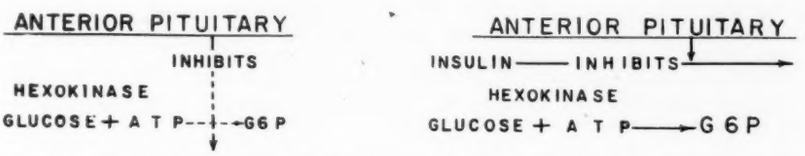

Fig. 1. Diagram of the Cori scheme illustrating the action of insulin on the Hexokinase reaction. ATP-adenosine triphosphate; g6P—Glucose-6-Phosphate.

In the winter of 1949 this problem was again approached in the laboratory of Dr. R. Levine.* The available evidence at that time indicated the following:

1. Insulin had not been shown to act in a cell free system. Therefore, an intact cell might be necessary for the action of insulin.

2. Insulin had not been shown to act upon any of the known steps of the intermediary metabolism of food stuffs. Therefore, the action of insulin might be at some other point in the utilization of glucose.

3. Insulin was known to affect both glycogen formation, i.e., glycogenesis, as well as the breakdown and utilization of glucose, i.e., glycolysis.

Two events occur prior to the separation of the metabolic pathways of glycogenesis and glycolysis. These are the entry of glucose into the intracellular

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space and the phosphorylation of glucose by adenosine triphosphate in the presence of hexokinase. Since the latter theory of the Coris was inadequate

one to which insulin is administered, the intravenously injected galactose distributes itself within the entire body water, i.e., at a volume distribution

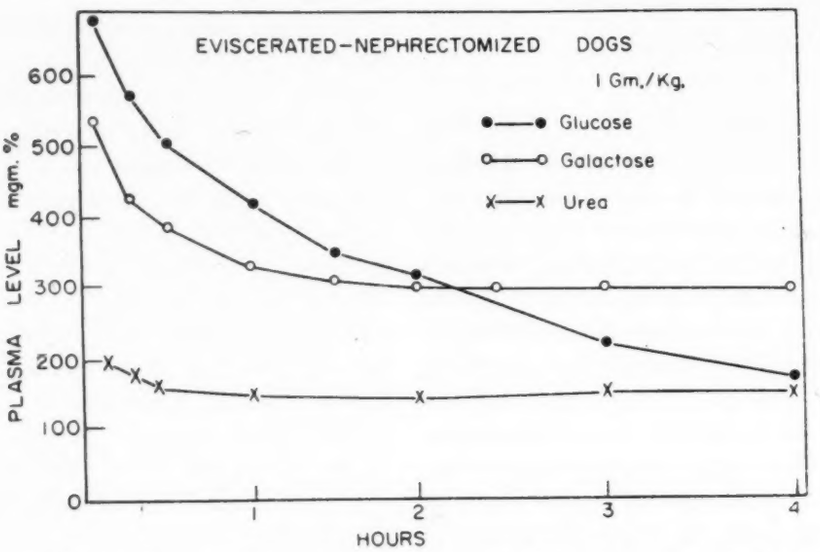

Fig. 2. Plasma concentrations of substances after intravenous administration to eviscerated-nephrectomized dogs. Dosage level: -1 gm/kg body weight. The substances tested were given in a single injection at zero time. Note the continuous fall of the plasma glucose level due to its utilization. By contrast the injected urea is quickly distributed in body water and its level remains stationary, since it is not being produced or used. Galactose behaves like urea; it is not being utilized in the absence of the liver, kidneys and gastrointestinal tract.

to explain all of the known facts, the idea that insulin might act in aiding the transfer of glucose from the extracellular to the intracellular space by increasing the permeability of the cell membrane was advanced.[14,15]

Glucose could not be used in these experiments because it would be extremely difficult to separate the process of entry into the cell from the metabolic utilization within the cell. Some other substance had to be chosen which would not be metabolically utilized by the test system. Another six carbon sugar, an isomer of glucose, i.e., galactose, was used. Galactose in the mammal can be utilized only by the liver, intestines and kidneys. Thus, in an eviscerated-nephrectomized dog, galactose behaves as a non-utilizable material. On injecting a given amount of galactose into such a preparation it becomes distributed in a particular volume of extracellular and intracellular fluid, and an equilibrium level is soon reached and maintained (Fig. 2). In an animal deprived in advance of its pancreas and thus free of insulin, the injected galactose will distribute itself in a volume equal to 40 per cent of the weight of the body. In an animal containing a normally functioning pancreas, or close to 70 per cent (Fig. 3). Tissue analysis showed none of the galactose had been utilized. Thus it is apparent that insulin enabled galactose to enter cells to which it had no access in its absence. An effect of insulin upon the hexokinase system can play no part since the test system, i.e., the eviscerated-nephrectomized dog, contains no phosphorylating system for galactose.

This experimental work showed that insulin promoted the movement of unchanged galactose into the cell. It was also demonstrated that the galactose was not utilized. It would seem highly unlikely that insulin acts upon an intracellular enzyme with respect to glucose while acting to promote the transfer in an unaltered form of so closely related a substance as galactose. It was therefore proposed that the transfer of glucose into the cell is not a free and unlimited process. Rather a cytostructural barrier exists upon which insulin acts to promote entry.

Confirmatory evidence was soon forthcoming aided by the utilization of radio-isotopes. Drury and Wick[9] using radioactive galactose demonstrated, in the eviscerated-nephrectomized animal, that insulin aids the entry of galactose into the

cell where it remains non-utilized. Park[16] using isotopic glucose was able to determine the concentration of free glucose as well as the phosphorylbranes where the chemical configuration about carbon atoms one, two and three is similar to glucose (Fig. 4).

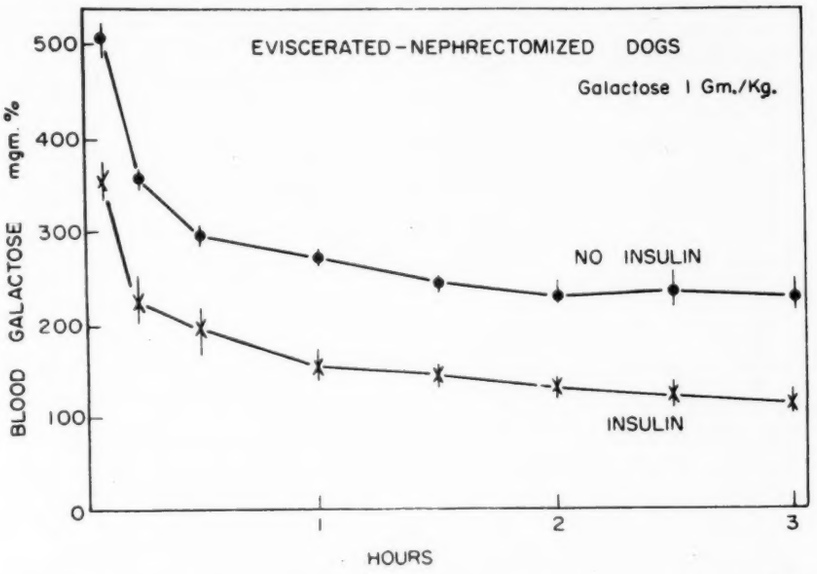

Fig. 3. Blood concentrations of galactose after intravenous administrations to eviscerated-nephrectomized dogs. Galactose was injected at zero time. Note that insulin caused a faster and wider distribution of the galactose. The galactose "space" in the absence of added insulin was about 45 per cent of body weight; in the presence of added insulin this space widened to about 70 per cent of body weight. The vertical lines indicate range of variation of all values obtained.

ated glucose within the cell. When insulin was present, the intracellular concentration of free glucose was four to five times that of the insulin free preparation. This data thus confirms the evidence that insulin is concerned with accelerating a transfer mechanism, independent of the hexokinase reaction, which facilitates the passage of glucose across cytostructural barriers.

This effect of insulin on the distribution of glucose and galactose is not a nonspecific effect, i.e., increasing membrane permeability to all types of substances.[10] Thus the rate of entry of d-fructose, d-mannose, l-sorbose, d-arabinose, sucrose, urea, creatinine and sodium into the peripheral tissues of the eviscerated animal is not enhanced by the administration of insulin. Glucose and galactose have the same configuration at the first three carbon atoms. The sugars not affected by insulin differ from this common configuration. However, d-xylose and l-arabinose, five carbon sugars with the same configuration as d-glucose and d-galactose, are affected by insulin in a similar fashion to these latter sugars. Therefore, it appears that insulin affects the transfer of sugars across cell mem-

Summary

Although many of the actions of insulin have been known since the historic work of Banting and Best, the locus of its action remained unknown. The accumulated evidence indicated that the effect of this hormone must be at the initial step of phosphorylation or at the point of entry into the cell. Previous work indicating the effect of insulin as an inhibitor of the pituitary, allowing the hexokinase system to phosphorylate glucose, was shown to be unacceptable. The proposition that insulin aided the entry of glucose into the cell was investigated. Using galactose, an isomer of glucose, in eviscerated-nephrectomized dogs, a substance was available which was not utilized but nevertheless would enter the cell. In an insulin free preparation the galactose distributed itself in a volume equal to 40 per cent of the body weight. In the presence of insulin, this area of distribution increased to 70 per cent of the body weight, i.e., total body water. Thus insulin enabled galactose to enter cells to which it had no access in the absence of the hormone. Phosphorylation could not be a factor since there is no known mechanism for

the phosphorylation of galactose. Since insulin acts by aiding the entry of galactose into the cell, it is a reasonable assumption that its effect should be

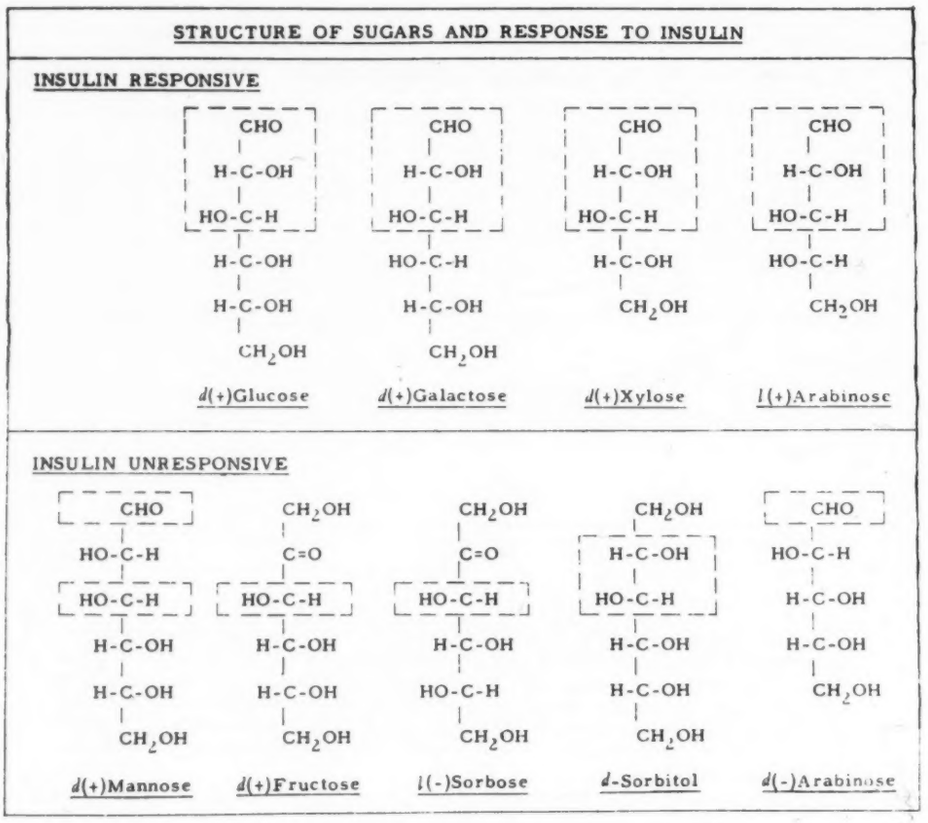

Fig. 4. Structure of sugars and response to insulin.

similar for glucose, rather than affecting some intracellular enzyme system. This hypothesis has been confirmed by the use of isotopic galactose and glucose.

Other substances including five carbon sugars were studied in a fashion similar to galactose. It was found that in addition to the six carbon sugars, d-glucose and d-galactose, two five carbon sugars i.e., d-xylose and l-arabinose were aided into the cell by insulin. The chemical configurations of these sugars indicated that insulin had an effect upon only those sugars possessing a structure similar to glucose at carbon atoms one, two and three.

Therefore, insulin increased the carbohydrate oxidation, utilization and transformation by increasing the intracellular supply of glucose, as well as other sugars having a similar configuration around carbon atoms one, two and three. This is accomplished by promoting the entry of the sugar into the cell past the cytostructural barrier. Once within the cell, the sugar enters the metabolic pool.

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14825 W. McNichols

Hidden Insulin Reaction and the Labile Diabetic Patient

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NUMEROUS ARTICLES and medical literature have dealt at some length with a group of diabetics who have been variously characterized as the brittle, the labile, the unstable or simply the hard-to-control diabetic. It is fortunate, for our basic sanity, that this group constitutes only a small percentage of those persons suffering from diabetes. Despite the small percentage, they constitute real worries and frustrations for the physician who treats more than an occasional diabetic.

It is generally well recognized that the severe juvenile diabetic is one whose disease is usually characterized by lability. Another subdivision of labile diabetes, in which we have been interested, is a group who have been susceptible to good control over quite a number of years and then without apparent cause change rather rapidly and become difficult to control. This occurrence does not appear to have been observed in the pre-insulin era but rather has been a development coincident with the use of insulin. It may be interpreted to represent an unusual response of certain diabetic patients to insulin therapy, and hence, it can be grouped with the growing classification of iatrogenic disease. We will not enter in this paper into any detailed philosophical discussion of the mechanisms involved in the production of this phenomenon of lability in diabetics; rather, we wish to call attention to one facet of the problem: a feature which we have termed the hidden insulin reaction.

The common clear-cut, precise reaction to crystalline or short acting insulin with its tachycardia, flushed sweating, hunger, weakness, visual abberations and all the other classical signs is thoroughly familiar. When NPH insulin is given in unnecessarily large dosage or with an inadequate dietary prescription, the blood sugar "drop" occurs most commonly in the late afternoon or early evening. Such a reaction is relatively commonplace and readily recognized. It is well known that insulin reactions may vary in clinical form from patient to patient. However, the reactions seem to show a fairly constant pattern for a given patient. With overdosage of PZI, and with a certain group of patients receiving NPH insulin, the lowest blood sugar may occur in the early morning hours. The hypoglycemia of this nature may and frequently

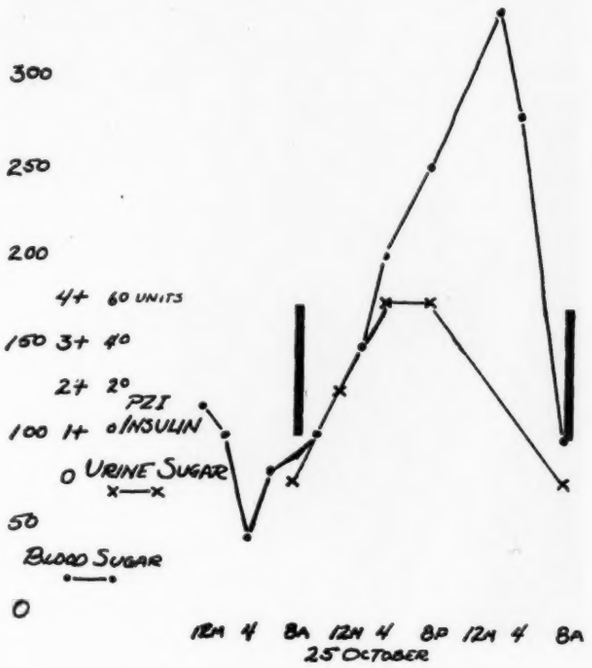

Fig. 1. Severe nocturnal hypoglycemic episode with the typical subsequent hyperglycemia and glycosuria. Routine fasting blood sugar determinations would obviously fail to show this "hidden" insulin reaction.

does awaken the patient with a drenching sweat, a severe headache, and other signs which are relieved by the intake of carbohydrate. However, a significant number of diabetics seem to go through such a markedly hypoglycemic episode without being aware of its occurrence or, perhaps, only complaining of having awakened with dampened bedding or pajamas. It is this type of reaction that we are characterizing as the "hidden" insulin reaction.

Our observations indicate that not infrequently following such an early morning reaction, the blood sugar on the following day rises to abnormal degrees and four plus tests for urinary sugar may be present. The appearance of this marked glycosuria on the day following a "hidden" nocturnal insulin reaction tends to lead the physician to increase the dose of whatever type of insulin is being used. This increase in dosage actually aggravates the condition and leads to further and more severe "hidden" insulin reactions and subsequent rebounding to hyperglycemic levels. The possible mechanisms involved in this suggested phenomenon will be considered elsewhere. This pattern has

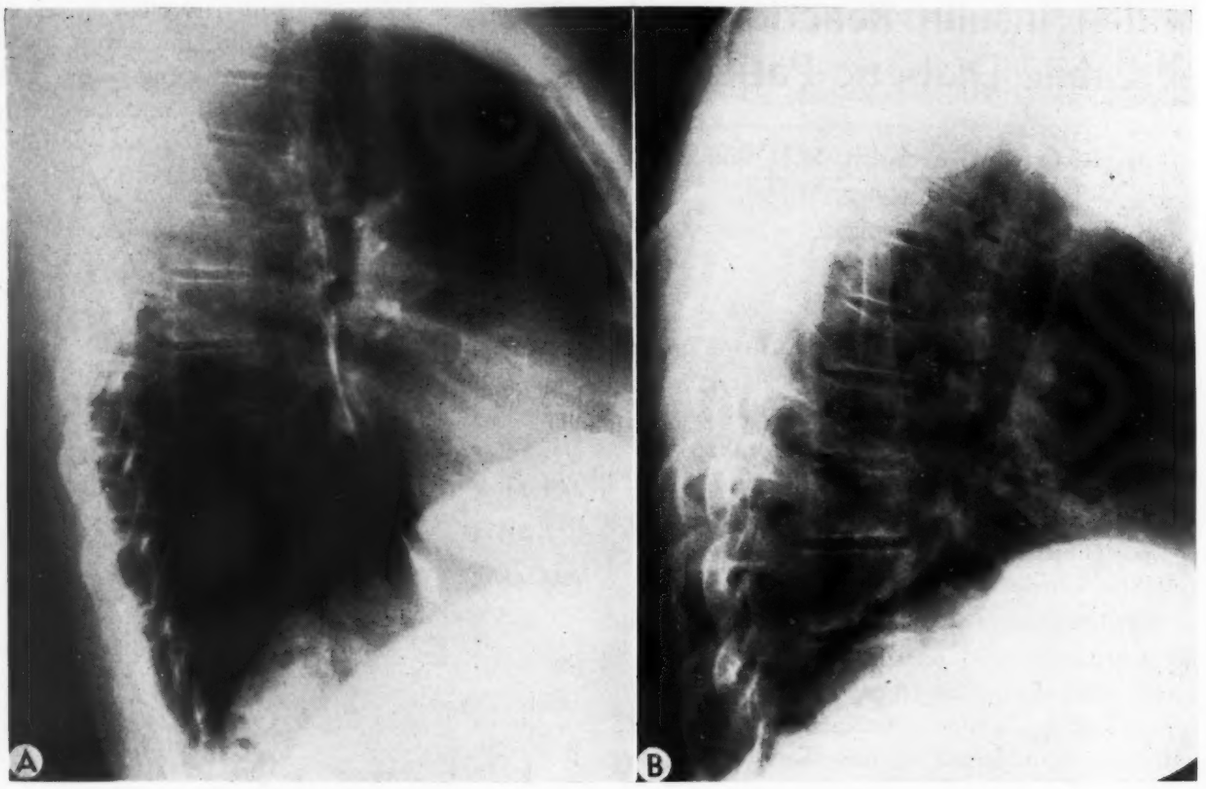

Fig. 2. (A) Radiograph taken on September 10, 1950, showing the patient's normal dorsal spine. (B) Film taken on October 6, 1950, showing the presence of compression fractures of the bodies of D-4 and D-6 subsequent to an unremembered convulsion caused by a "hidden" insulin reaction.

been observed in a significant number of diabetic patients; it is not an infrequent complication of insulin therapy and causes the doctor to feel that he is dealing with a labile diabetic. In Figure 1 is graphed the typical insulin, blood and urine sugar findings in one patient who had such a "hidden" reaction. In this individual, the insulin reaction which occurred was buried in sleep. Its recognition required the determination of blood sugars at frequent intervals particularly through the night.

An objective and striking example of the hidden insulin reaction can be demonstrated by review of a portion of the case history of a forty-seven-year-old dentist* who had been a known "labile" diabetic for seventeen years. At the time of his admission to Harper Hospital in September 1950 he was poorly controlled on a diet formula of protein 85 grams, carbohydrate 175 grams and fat 120 grams and some 105 units of PZI and crystalline insulin. He showed frequent hypoglycemic blood sugar levels followed by marked hyperglycemia. These occurred without apparent cause in spite of careful search for concealed infection and for other factors usually considered important in making a brittle diabetic even more brittle. The insulin dosage had been gradually reduced to 75 units of NPH insulin a.c. breakfast daily when the patient awoke at 6:30 a.m. on October 6, 1950 complaining of severe radicular pain about the upper back and chest. Clinical considerations included pleurisy and an acute coronary thrombosis, but on close study, a sore, severely bitten tongue was discovered. It is suggested that there had been a convulsion and subsequent x-ray examination of the spine revealed the presence of fresh compression fractures of the fourth and sixth dorsal vertebral bodies without evidence of other vertebral disease. The occurrence of such vertebral fractures has been a recognized danger of the use of insulin shock therapy and fitted well with the idea that the patient had had a convulsion. Review of the patient's previous and subsequent night blood sugar levels indicated the occurrence of hypoglycemic espisodes of severe enough degree to cause a major convulsion. Yet this intelligent patient,

(Continued on Page 1131)

*We are indebted to Dr. Alvin E. Price for the opportunity of seeing this patient in consultation and for the use of this material from his record.

Treatment of Diabetes by the General Practitioner

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DIABETES is most frequently diagnosed by the physician in general practice, and, in the majority of cases, the disease is treated by this same physician unless some complication arises. Because of the fact that complications are so common, so disabling, so irreversible in character, and even at times terminate fatally, it is extremely important that the physician who first makes the diagnosis and undertakes the treatment of these patients, should have a good basic understanding of the routine management of the disease, its course and its complications.

The diagnosis of diabetes is usually fairly simple. The classic symptoms of the disease are known to all physicians and most of the laity. The finding of sugar in the urine and a definite elevation of the fasting blood sugar completes the diagnosis in a majority of the cases. Occasionally in a pre-diabetic or borderline case, a glucose tolerance test may be necessary. Once the diagnosis has been established, the physician should take the time to briefly outline to the patient the cause of the disease. He should discuss with the patient the predisposing factors and the hereditary background of the condition. An explanation as to the causation of the presenting symptoms is often helpful and is appreciated by the patient.

A discussion of foods in general, and especially the composition of different foods and their caloric value is quite essential. The patient should be taught early the importance of the diet in his future treatment. The custom of handing the patient only a list of "foods to be avoided" is to be deplored. He should be told what to eat and how much to eat. If instruction in the use of weighed diets is not possible, carefully controlled measured diets should be outlined for each patient, and adherence to these be insisted upon by the physician. Many well balanced diets of different caloric values are now available to all physicians through the American Diabetes Association booklets, and can also be obtained from pharmaceutical houses engaged in the production of insulin. Many types of "exchange diets" also help to relieve the monotony of the diet. Patients that are started on diets which contain sufficient calories and with an ample variation of foods will, as a rule, adhere to their diets. An allowance of thirty calories per pound for a growing child and thirty to thirty-five calories per kilogram for an adult is usually adequate. The use of weighed diets is the most satisfactory. The patients who do weigh their foods, learn food values and the size of portions of foods, can vary the menu to suit their taste. They are also the patients who have the least trouble with Insulin reactions and glycosuria. Weighed diets are indicated in the treatment of all juvenile patients.

Regardless of the type of diet used, the patient must be impressed with the fact that adherence to a diet with a constant caloric intake is paramount in his treatment. He must also be impressed with the fact that the taking of insulin does not allow for more freedom in his diet, but in most instances requires even more strict attention to food because of the balancing of the food on one hand against insulin on the other hand. The use of insulin has given many patients a feeling of false security, to the extent that he gives little or no attention to other phases of his treatment, however every physician has known for many years that the administration of insulin does not prevent the development of complications of the disease later in life.

The use of "free diets" should be discouraged. What diabetic needs to be encouraged to eat more? If one practices the free diet method and the patient advised that hyperglycemia and glycosuria are of no importance, what is left for the physician to do? His only duties will be in the management of infections, the treatment of coma and the extending of sympathy to the patient when he develops his vascular complications later in life.

The family physician should teach the patient, on his first visit, the technique of testing the urine for sugar and acetone. With modern reagents at hand this is quite simple. Any office nurse can instruct the average patient how to make these tests in five minutes. Patients should be taught to make their tests, not only in the fasting state, but at different time periods during the day. They should also keep a daily record of their tests and bring these reports with them at the time of their next office call. Occasionally one finds a patient who tests too frequently or too near his meal time.

Read before the Detroit Diabetes Association. March, 1954.

This should be discouraged as such tests are misleading.

Should the new patient be an adult and his diabetes not too severe, and if he presents no complications, he should be given a trial diet alone for a week or so. If at the end of this time he returns to his physician and reports most of his urine tests as showing sugar, if he has lost further in weight and his blood sugars remain elevated, he will possibly need to take insulin to control his disease. The dosage can be increased at subsequent calls until most tests of the urine made throughout the day are sugar free. Following this a series of blood sugars made both fasting and post-prandial will allow for the selection of the proper type of insulin and then the exact dosage can be determined.

The juvenile diabetic should, if possible, be hospitalized as soon as the condition is diagnosed. This allows for better stabilization of the diabetes, and at the same time the parents may be instructed in dietary management, the administration of insulin and other details. During this same period while the child and the parents are in a receptive mood, much knowledge can be acquired which makes the routine of future management more satisfactory for all concerned. Instruction as to procedure necessary during infections, and the early symptoms of acidosis and its treatment, can be outlined to the family. Rules as to exercise, the recognition and treatment of hypoglycemia and other more common irregularities can be formulated.

The physician may at times have difficulty in selecting the proper type of insulin. Recently the tendency has been to place most patients on NPH insulin regardless of their age and the severity of the diabetes. This is not feasible in all cases, as the examination of the blood sugar and the urinary findings at different times throughout the 24 hour period indicates. Wide fluctuations in the blood sugars do occur and the spillover of sugar in the urine is excessive at various times. The rearrangement of the meal time and the uneven division of feedings will not always correct this fault. Frequently only fasting blood sugars are made, and urine tests made only in the morning upon arising. This does not give satisfactory information as to the state of control of the patient's diabetes; in fact it is quite misleading to both the doctor and the patient. This is one of the most common errors made by the man in general practice. This criterion of control may allow the patient to have severe diabetes about 18 hours out of every twenty-four. We should help to clear up this fallacy.

Many of the older patients with a mild diabetes can be easily controlled with a single dose of Protamine insulin per day. Some of the middle-age patients with a more severe diabetes require Protamine Zinc Insulin, NPH or Globin Insulin once or twice daily, and occasionally supplementary doses of unmodified insulin are necessary. The juvenile patients need either NPH or Protamine insulin, plus one or two doses of unmodified insulin each day. The physician in general practice should become acquainted with the "action-time" of each type of insulin and use it "tailor-made" to suit the patient if he can possibly do so. Certainly a universal insulin is not yet available.

The physician who undertakes to treat a diabetic patient accepts a lasting obligation. He must not only select the proper diet in the beginning, but make the necessary changes as the conditions vary. He must be certain that the patient is following his diet at least most of the time. The insulin requirement of many patients also changes from time to time. This can only be determined by regular and fairly frequent check-ups. These are carried out year after year, in order to obtain the state of control desired.

Occasionally one will see younger patients who have been under the care of their family physician for years but who have consulted him only when in trouble. Without supervision they have become careless as to diet, insulin administration and other details and often present some serious complications such as dwarfism, tuberculosis, retinal hemorrhages, blindness, hypertension, nephritis and Kimmelstiel-Wilson disease. Many of these might not have occurred had there been regular and frequent examinations by their physician. He could have given advice and help which might have prevented these complications. He must therefore insist that all patients have a routine examination at regular intervals.

Three years ago, I saw a boy twenty years of age who came in because of rapidly failing vision. He had developed his disease at three years of age. He had never had a blood sugar examination. Following the discovery of his diabetes his parents had taken him to the physician for only about six months. Following that time he had only seen his doctor when in trouble. He had not had an examination by his physician for over three years. His urine had not been tested for several years.

The boy had massive post-retinal hemorrhages in both eyes. His blood pressure was not elevated, he had no albuminuria and no impairment of kidney function. There was nothing to denote nephritis such as seen in most of these uncontrolled young diabetics. We felt therefore that his hemorrhages must have been due to his uncontrolled diabetes. During the past three years he has become totally blind, but his physical condition remains the same. This type of patient is most distressing to treat.

Frequently we see young diabetics whose disease was discovered between three and ten years of age. They may have good management for a period of from five to ten years. But then, at the age of puberty, they become very obstinate and difficult to manage. They refuse to cooperate with their physician and will not heed the advice of their parents. They disregard all of the rules and regulations which they have previously been taught to observe, with the administration of insulin being the only detail which they continue to carry out. They appear to do fairly well until the age of eighteen to twenty-five years, when they begin to show evidence of weight loss, fatigue and some impared vision. They surprisingly enough have not had too much difficulty with infections and aside from a few mild bouts of acidosis appear to have gone along fairly well. When they do present themselves for examination, one may find early lens changes, and on examination of the retinae, some slight sclerosis of the retinal vessels, and a few small aneurysimal hemorrhages. There may also be a few small cotton-ball lesions of retinitis. The blood pressure at such a time may be slightly elevated and albumin with a few red cells may be noted in the urine. This type of patient, if he again adheres to his diet, takes the proper type and amount of insulin, may arrest the condition at this stage; however, some of the patients, even though they do follow a careful routine have progressive changes in their eyes and kidneys. This patient may in the course of a year or two present an advanced Kimmelstiel-Wilson disease which may prove fatal in the course of six months to a few years. Because of the fact that this picture is seen so frequently, it behooves us to impress upon the general practitioner, if he elects to treat these patients, that he must see them frequently and insist upon their complete cooperation at all times, in order to prevent or delay these complications.

Every physician who, in the past, has treated these young diabetics over a period of twenty-five years or more realizes the value of good diabetic control over long periods of time. It is gratifying to see these young men and women who developed their diabetes in childhood without any complications after this long period of time. Physicians who make the statement that the degree of control of the diabetic state has nothing to do with the prevention of complications have not lived long enough, or close enough, with the patients of the two different groups to determine the value of good diabetic control over a long range period.

Diabetics of all ages need to see their physician at regular intervals. The juvenile patient particularly needs changes in his caloric intake and an increase in his insulin so he can be active and healthy and develop like a normal child. The older patients need regular and routine examinations for evidence of nephritis, coronary artery disease and the possible development of malignancy. They need attention to lesions of the feet and a careful study of their peripheral circulation several times a year. They are entitled to a complete physical checkup at least once a year. Careful examinations of their eyes should be made at even more frequent intervals. They should have a careful examination by their dentist and oculist twice a year. All patients past fifty years of age, regardless of their blood pressure and retinal findings, should have an electrocardiographic examination and a chest x-ray once a year.

Perhaps many of you feel that all of these procedures cannot be carried out by the general practitioner and that most of these examinations should be relegated to the physician who specializes in the treatment of diabetes. By the time these patients are seen by the specialist, however, many of the complications are present, and little can be done to relieve or to retard their future development. Most of the patients who now consult a specialist, have had ten or fifteen or more years of treatment.

My thought, therefore, is that the physicians who now make a speciality of the treatment of diabetes, and all members of the American Diabetes Association, should make every effort to bring out more frequently and more forcibly the essentials of good treatment of this disease to our fellow physician, the general practitioner.

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Studies on a Test for the Prediction of Diabetes Mellitus

By Stefan S. Fajans, M.D. and
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A LARGE proportion of presently non-diabetic individuals who have a family history of diabetes mellitus will eventually manifest the disease. It is conceivable that impairment of reserve islet-cell function may exist in such individuals even though carbohydrate tolerance can be demonstrated to be normal at the present time.

The present study was begun in 1950 with the following objectives:

1. To attempt to unmask the potential diabetic who manifests normal carbohydrate tolerance by present testing methods.

2. To determine whether or not the established diabetogenic activity of ACTH and/or cortisone could be used as a means of bringing to the surface a subclinical defect in the metabolism of carbohydrate.

It became necessary, as the initial step in this investigation, to establish a testing dose of either ACTH or cortisone which would not modify significantly carbohydrate tolerance in people without family histories of diabetes, but which would modify significantly carbohydrate tolerance of a considerable number of individuals with known family histories of diabetes mellitus. This has been accomplished and forms the basis of one of our major findings, namely, that 24 per cent of presently non-diabetic relatives of diabetics react to this test in a specific way while this same response is observed in the control group in but 3 per cent of subjects. As will be detailed below the total dose of cortisone employed in this test is 100 or 125 mg. of cortisone administered orally as two doses during an eight and one-half hour period prior to an oral glucose tolerance test.

This paper represents an abbreviated version of one presented on June 20, 1954 at the Annual Meeting of the American Diabetes Association in San Francisco: "An Approach to the Prediction of Diabetes Mellitus by Modification of the Glucose Tolerance Test with Cortisone" *Diabetes*, in press.

From the Department of Internal Medicine, University of Michigan Medical School, Ann Arbor, Michigan.

Method of Investigation

Subjects.—Glucose tolerance tests were performed before and after the administration of corticotropin or cortisone in 152 ambulant, healthy, relatives of diabetic patients and in 50 normal control subjects without a known family history of diabetes. The relatives of diabetics were offspring, siblings, or parents of patients with diabetes. Medical students, physicians, dietitians, and other healthy individuals, each without a known family history of diabetes, were used as control subjects.

Glucose Tolerance Tests.—For three days preceding the first (baseline) glucose tolerance test, all subjects ingested a standard preparatory diet containing 300 grams of carbohydrate.[1] The oral glucose tolerance test was employed using 1.75 grams of glucose per kilogram of ideal body weight, calculated from subject's height and age. Venous blood was obtained in the fasting state and every half hour for three hours after the ingestion of glucose. Blood sugar was determined in duplicate by the Nelson modification of the Somogyi method,[2] yielding "true blood sugar" values. The normal range for the level of the fasting blood sugar is 70 to 100 mg. per 100 cc. of blood with this method.

After completion of the baseline glucose tolerance tests the subjects continued on their standard preparatory diets for lunch and dinner of that day. The next morning the second glucose tolerance test was done. This time, however, the subjects received the priming doses of cortisone. If the subject weighed less than 160 pounds he received orally 50 mg. of cortisone acetate eight and one-half hours and two hours preceding the ingestion of glucose. If he weighed more than 160 pounds he received 62.5 mg. of cortisone acetate orally at the same time intervals. The total number of subjects finally tested in this specific way was 130 (thirty-seven controls, seventy-five non-diabetic relatives of diabetic patients, and eighteen diabetics). Not included in the present report are data obtained with ACTH or with use of varying amounts of cortisone. However, baseline data ("unprimed" glucose tolerance tests) from the entire group (202 subjects) are recorded (Fig. 1) for the purpose of indicating the incidence of undetected diabetes among apparently healthy relatives of diabetic patients.

Interpretation of Glucose Tolerance Tests.—The criteria employed for the interpretation of the initial (precortisone) glucose tolerance test were similar to those of Mosenthal[3] and of Moyer and Womack.[4] These, as well as most other investigators, consider the two-hour blood sugar value as the critical one.

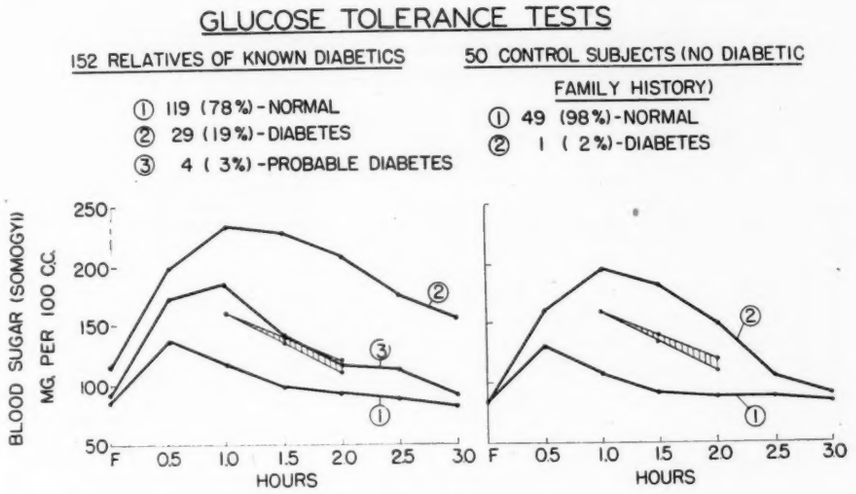

Fig. 1.

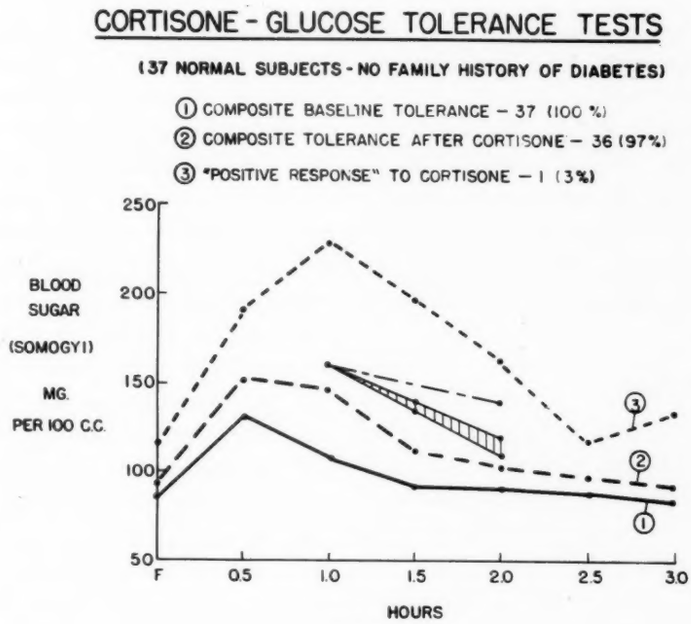
CORTISONE - GLUCOSE TOLERANCE TESTS
(37 NORMAL SUBJECTS - NO FAMILY HISTORY OF DIABETES)
① COMPOSITE BASELINE TOLERANCE – 37 (100 %)
② COMPOSITE TOLERANCE AFTER CORTISONE – 36 (97%)
③ "POSITIVE RESPONSE" TO CORTISONE – 1 (3%)
BLOOD SUGAR (SOMOGYI) MG. PER 100 C.C.
250
200
150
100
50
F 0.5 1.0 1.5 2.0 2.5 3.0
HOURS

Fig. 2.

We regard the combination of a one-hour value of 160 mg. per cent or above, plus a two-hour value of 120 mg. per cent or above as diagnostic of the existence of the diabetic state. A diagnosis of "probable" diabetes was made when the one-hour value exceeded 160 mg. per cent and the two-hour value fell between 110 and 120 mg. per cent. In order to eliminate a false diagnosis of diabetes on the occasional curve which drops abruptly at 1.5 hours and rebounds above 120 mg. per cent by two hours we have added a third criterion, namely, that the level at 1.5 hours be 140 mg. per cent or above to be diagnostic. Figure 1 illustrates these criteria. A diabetic curve is one in which all points lie at, or above, the upper border of the cross-hatched triangle. A "probable" diabetic curve is one which lies at or above the lower border of the cross-hatched zone but in which the sugar level at two hours is between 110 and 120 mg. per cent.

We are convinced that when standard dietary preparation is employed and "true blood sugar" is measured these criteria are sound. Nevertheless,

some will regard them as insufficient evidence upon which to base a diagnosis of diabetes mellitus. If this can be proved, then our figures for incidence of fully developed, undetected diabetes in relatives of diabetics would be too high. It is equally clear, however, that those relatives of diabetics whose tolerance curves fall *below* these levels would be called diabetic by no one. It is this specific group, which would not be called diabetic by any presently accepted criteria, that makes up the main interest of this communication. Can *this* group be split into two categories, one potentially diabetic and the other one not?

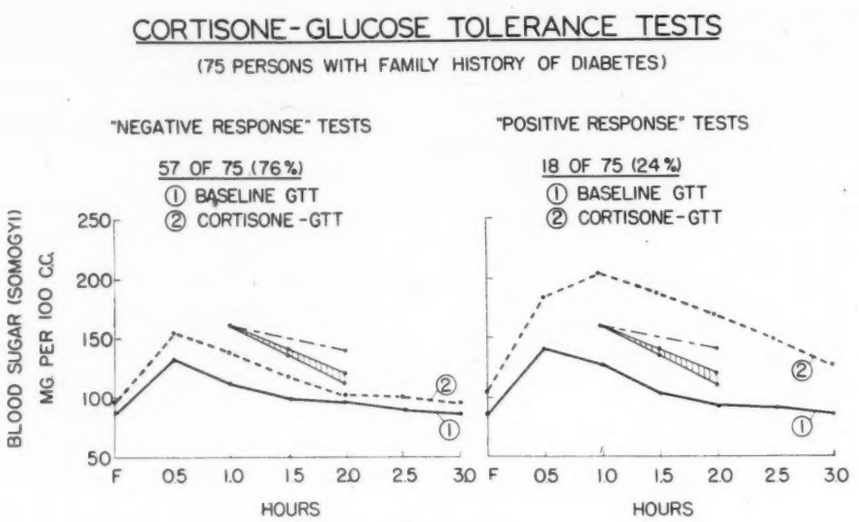

Fig. 3.

Results

Figure 1 shows the incidence of diabetes in subjects with and without a family history of diabetes. In the group of 152 relatives of diabetics, twenty-nine (19 per cent) were found to be diabetic on the initial test. This represents the incidence of unsuspected diabetes in this group. Using the same criteria in the control group only one (2 per cent) of fifty could be called diabetic.

Four more subjects (3 per cent) with positive family histories gave curves indicating "probable" diabetes while none in the control group had borderline curves. On Fig. 1 are shown the composite curves for these groups.

In thirty-seven of forty-nine normal control subjects (Fig. 2) the cortisone-glucose tolerance test (described under Methods) was performed. One individual showed a high curve (curve 3) and thirty-six gave low curves (composite curve 2). The mean two-hour blood sugar value of these thirty-six subjects was 103 mg. per cent with a standard deviation of 12.4 mg. per cent. Using three standard deviations from the mean as representing a high degree of significance, we set a level of 140 mg. per cent (103 plus 37) at two hours as the critical one for interpretation of the cortisone-glucose tolerance test. Thus a cortisone-glucose tolerance curve giving a two-hour blood sugar level of 140 mg. per cent or above represents a positive response while one below 140 mg. per cent is, for present purposes, regarded as a negative response. In the various figures the dashed line which connects a one-hour value of 160 mg. per cent with a two-hour value of 140 mg. per cent defines our criteria for a positive or negative cortisone-glucose tolerance test. Figure 2, then, shows the composite baseline glucose tolerance tests for the thirty-seven control subjects, the composite cortisone-glucose tolerance tests in the thirty-six individuals (97 per cent) with negative responses, and the curve for the one subject (3 per cent) with a positive response.

Cortisone-glucose tolerance tests were performed on seventy-five persons with a family history of diabetes but whose baseline glucose tolerance tests were *normal* (Fig. 3). Of the seventy-five individuals, fifty-seven (76 per cent) showed a negative response and a mean two-hour blood sugar level of 104 mg. per cent. This level is the same as that seen in 97 per cent of the control subjects during the cortisone-glucose tolerance test. Eighteen of the 75 (24 per cent) showed a positive response and a mean two-hour blood sugar level of 169 mg. per cent. It is interesting, at this point,

to observe that 32 per cent of those who gave a negative response and 11 per cent of those who gave a positive response were more than 15 per cent overweight.

glucose tolerance test. Two of the 12 diabetics showed no further elevation of the blood sugar level over baseline values during the cortisone test.

Figure 5 shows the composite curve of three

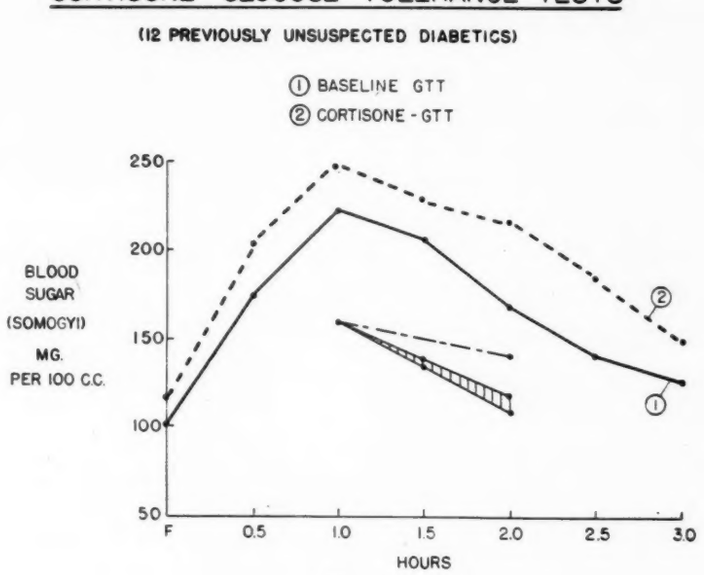

Fig. 4.

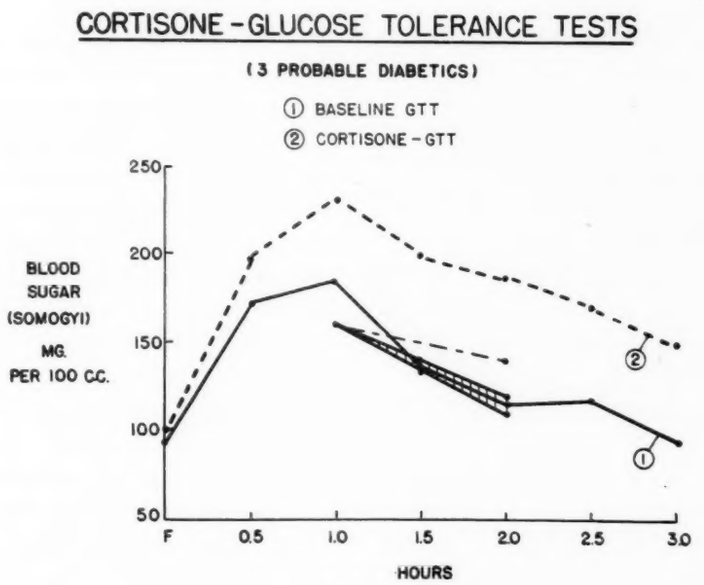

Fig. 5.

Cortisone-glucose tolerance tests were done on some of the subjects who were discovered to have diabetes on the initial glucose tolerance test. Fig. 4 shows the composite baseline and cortisone-glucose tolerance tests of twelve previously unsuspected diabetics. The mean two-hour blood sugar level of the baseline tests was 170 mg. per cent. It rose to 217 mg. per cent during the cortisone-

subjects classified by their initial glucose tolerance test as "probable" diabetics. The cortisone-glucose tolerance test was positive in all three, with a mean two-hour blood sugar level of 188 mg. per cent.

Figure 6 demonstrates data obtained in six obese, mild diabetics. Curve 1 shows the composite baseline glucose tolerance at the time of the initial

test. These patients were then fed low caloric diets and lost from 15 to 30 pounds of body weight. All of the six patients then exhibited normal glucose tolerance curves (curve 2). Cortisone-glucose tolerance tests were now performed. All demonstrated their defect by giving a positive response (curve 3). This latter curve is similar to that obtained in 24 per cent of people with family histories of diabetes whose baseline glucose tolerance curves are normal (see Figure 3).

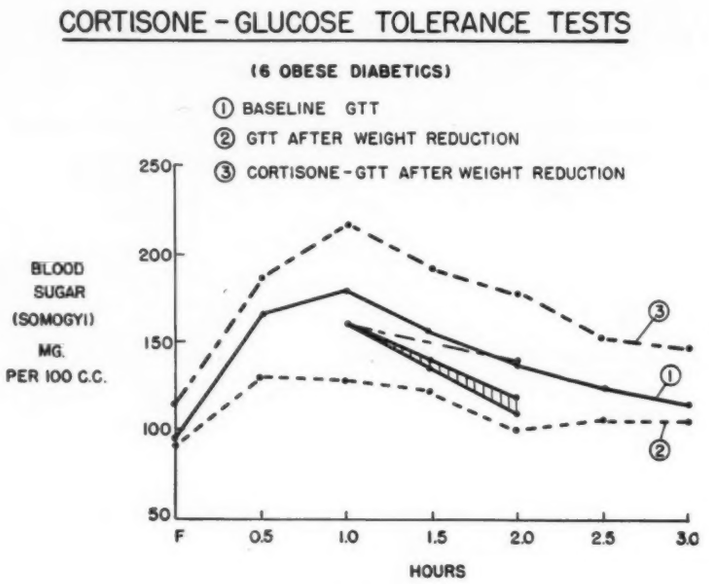

Fig. 6.

Discussion

It was surprising, indeed, to find that 19 per cent (or possibly 22 per cent) of apparently healthy relatives of diabetic patients were already diabetic by the same criteria that gave an incidence of 2 per cent in people without a known family history of diabetes.

However, this study was initiated to determine whether *potential* diabetes could be uncovered in the presence of normal carbohydrate tolerance by present testing methods. It seems very significant that 24 per cent of seventy-five non-diabetic relatives of diabetic patients show a response to the cortisone-glucose tolerance test which is distinctly different from the rest of that group; and that this abnormal response was observed in but one of thirty-seven (3 per cent) control subjects. It is important, too, that the abnormal cortisone-glucose tolerance response exhibited by 24 per cent of *non-diabetic* relatives of diabetics is the same response given by (1) the group with established diabetes, (2) the group with "probable" diabetes, and (3) the group of obese diabetics whose carbohydrate tolerance had returned to normal after reduction of body weight.

The remaining 76 per cent of non-diabetic relatives responded to the cortisone-glucose tolerance test as did 97 per cent of the normal controls with but minimal loss of carbohydrate tolerance.

Thus, on the basis of rigidly controlled experiments a test has been devised which separates into two distinct groups the presently non-diabetic relatives of diabetic patients. One group responds to this test as diabetics do and the other group responds as do the controls. Only the future incidence of clinical diabetes in the two groups, as well as in the control group, can prove whether or not the cortisone-glucose tolerance test as used in these studies, has value in predicting which non-diabetic members of a family tainted with the disease will eventually manifest it themselves. Such serial studies are already in progress but it probably will be many years before a definite answer becomes available. If research aimed at future prevention of diabetes is to be fruitful we must discover these individuals before their diabetes has become well established. It is our hope that this test will provide such a tool. Meanwhile the total series continues to be enlarged and work continues in several directions. Further study is needed, for example, of varying dose-time schedules with respect to administration of carbohydrate-active steroids. Insufficient steroid activity at a given

time may fail to disclose some subjects with a diabetic diathesis while excessive activity results in significant loss of carbohydrate tolerance in normal individuals.

Finally, one can merely speculate upon the possible modus operandi by which the cortisone-glucose tolerance test separates into two groups the presently non-diabetic relatives of diabetics. While far from proved, it may be that an insulogenic mechanism with marginal reserve function is sufficiently taxed by a small but sudden excess of 17-hydroxycorticoid activity that it temporarily decompensates.

Summary

1. Unsuspected diabetes was found in at least 19 per cent of 152 relatives of diabetic patients. Only one of the fifty control subjects demonstrated a diabetic glucose tolerance test.

2. Studies upon the non-diabetic relatives of diabetics comprise the major effort of this investigation. Glucose tolerance tests were repeated in 130 individuals (thirty-seven controls, seventy-five non-diabetic relatives of diabetics, and eighteen diabetics) after oral administration of 100 or 125 mg. of cortisone during an 8½-hour period immediately preceding the second test.

3. Twenty-four per cent of seventy-five non-diabetic relatives of diabetics showed marked loss of carbohydrate tolerance during the cortisone-glucose tolerance test. Only one of the 37 controls showed the same loss of carbohydrate tolerance.

4. With the same test similar loss of carbohydrate tolerance was found in: (a) The group with established diabetes, (b) The group with "probable" diabetes and (c) The group of obese diabetics whose carbohydrate tolerance had returned to normal after reduction of body weight.

5. Future follow-up studies will determine whether the non-diabetic individuals who gave positive responses to the cortisone-glucose tolerance test are indeed those who comprise our future diabetic population.

Acknowledgment

We are indebted to the Upjohn Company, Kalamazoo, Michigan, and to Merck & Company, Rahway, New Jersey, for the cortisone acetate used in these studies.

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HIDDEN INSULIN REACTION

(Continued from Page 1127)

who had experienced many insulin reactions during his waking hours, had absolutely no remembrance of this very severe reaction. There was a continuation of the erratic course and blood sugar pattern until the insulin dosage had been reduced to less than 50 units per day.

Discussion and Conclusion

The unrecognized nocturnal hypoglycemia herein characterized as the "hidden" insulin reaction represents only one factor in the much larger problem of lability in diabetes. With increasing use of longer lasting insulins, it has appeared that such "hidden" reactions are occurring with greater frequency and that this phenomenon might well be called to general medical attention. A more complete presentation is planned to discuss mechanisms involved. At present, alterations in therapy, suggested by the presence of nocturnal hypoglycemic episodes with subsequent hyperglycemia are:

1. A definite reduction in the total insulin dose with probable changes in proportions of long and short acting insulin and in the time of administration. Such problems can be controlled by splitting the total daily HDH dose into two parts—one at breakfast and one at supper.

2. Adjustment in the dietary prescription allowing redistribution of the available glucose with provision of more slowly absorbed sources of glucose as are found in milk and cheese as opposed to fruit juices. Such changes would tend to support the blood sugar levels in the early morning hours. Again, it is important to recognize that a high afternoon blood sugar level may not always be due to too little insulin. One must look for the "hidden" insulin reaction in a patient having such a high blood sugar level. The proof of such occurrence requires the determination of blood sugars at frequent intervals during the night and the attendant increased cooperation on the part of house staff, laboratory personnel, and last, but certainly not least, the patient.

1515 David Whitrey Bldg.

Posterior Pituitary Hormone as a Factor in Insulin Resistant Diabetes

By Robert C. Moehlig, M.D.
Detroit, Michigan

WE are all acquainted with cases of insulin-resistant diabetic patients. There have been various explanations for this, such as overactivity of the anterior pituitary gland, and the adrenal cortex. No doubt these do play a role, but the posterior pituitary factor, has not, as far as I am aware, been sufficiently stressed. Certain physiological and pharmacological effects are of importance. It has been shown that posterior pituitary extract raises blood sugar.[1,2] It also neutralizes the effect of insulin, that is, when posterior pituitary extract is given at the same time as insulin then no fall or a negligible fall of blood sugar takes place.[2,3,5,11] Animals that receive either fatal doses of insulin or a sufficient amount to produce convulsions can be saved from a fatal outcome or the convulsions can be stopped by injections of posterior pituitary extract.[8] It is believed that the sugar which overcomes the aforementioned conditions is derived from the liver.[10] Posterior lobe extract also causes an elevation of inorganic phosphate in the blood in opposition to insulin.[10] It may be said that this is due to the anterior pituitary overactivity with its diabetogenic effect and a final exhaustion of the pancreatic insulin islet cells from the constant pituitary stimulation.

However the posterior lobe may well be an additional factor in producing insulin-resistant diabetes. If this is true then the whole pituitary gland is to blame for insulin resistance. It is of interest that posterior lobe hormone is secreted in greatest amount at night when its antidiuretic activity is also the greatest producing the nocturnal concentration of urine.[6]

That the whole pituitary is concerned with polyuria and polydipsia of diabetes seems a reasonable assumption. Of course the adrenal cortex is a large factor in this but our concern is the posterior pituitary factor in insulin-resistant diabetes.

Clinical observations strongly suggest the reason why some individuals are insulin resistant and we may learn from these observations just how this is brought about. As an example, diabetes mellitus associated with thyrotoxicosis, especially severe and uncontrolled, gives valuable information as to the mechanism of insulin resistance. The primary stimulus of the thyroid hormone to the brain, and to the pituitary and for present purposes the neuro-ectodermal posterior lobe, results in an outpouring of the posterior lobe insulin-counteracting hormone. We have a right to assume that since the thyroid stimulates nervous tissue it would *pari-passu* stimulate the nervous tissue of the posterior lobe. Carrying this a step further, the thyroid hormone also stimulates the nervous tissue of the adrenal medulla or as we know it, the chromaffin tissue, and the whole sympathetic system. Here then is another insulin inhibitor namely, the secretion of the adrenal medulla, epinephrine. As we know epinephrine also overcomes insulin hypoglycemia.

The sequence of events in thyrotoxicosis would be as follows: Thyroid stimulus to ectodermal adrenal medulla with epinephrine release, thence to the brain, hypothalamus, neuro-ectodermal posterior pituitary lobe, anterior pituitary lobe and thence the mesodermal adrenal cortex—all these factors would be in opposition to insulin. It is well known that the thyroid stimulates the adrenal medulla and that the adrenal medulla secretion, epinephrine, stimulates the thyroid, a reciprocal relationship. While my purpose is to show the posterior pituitary hormone is an insulin inhibitor and thus help produce an insulin resistant diabetes, I am cognizant that other factors play their part in producing this. Were we to use the same example of an uncontrolled thyrotoxic individual with insulin resistant diabetes mellitus it can be shown that embryology assists us in understanding how this is accomplished. The thyroid influences ectodermal tissues and if this is true then the thyroid secretion would activate the ectodermal nervous tissue, which for purposes under discussion would be the hypothalamus; the ectodermal anterior and posterior pituitary lobes, the ectodermal adrenal medulla and the ectodermal sympathetic-parasympathetic systems. I merely mention in this connection that the pituitary despite its ectodermal origin influences mainly mesodermal tissues, which again for present purposes we emphasize that the adrenal cortex in contrast to its neighboring ectodermal medulla, is of mesodermal origin.

From the Department of Medicine, Harper Hospital and Wayne University, Detroit, Michigan.

Another step in physiological selective embryological relationships is the effect of posterior lobe hormone on certain mesodermal tissue derivatives. On injection, extract of the posterior pituitary produces vasoconstriction of the mesodermal blood vessels; contraction of the mesodermal smooth muscles of the bladder, uterus, intestine, gall bladder and elsewhere; it produces antidiuresis by its effect on the mesodermal kidney, and it produces an expansion of the mesodermal melanophores.

It is therefore important to bear in mind the insulin inhibitor effects of the posterior pituitary hormone in insulin-resistant diabetes mellitus. So far we have not found an antagonist to the posterior lobe hormone but physiology would suggest that in the female corpus luteum hormone or progesterone would be antagonistic to the posterior pituitary hormone. No such antagonism exists in the male. It is to be hoped that physiological chemists will find an antagonist to the posterior lobe hormone and thus overcome this factor in insulin-resistant diabetes.

It may well be that such a discovery may diminish the tendency to diabetic arteriosclerosis, since it would overcome the vasoconstrictor effect of posterior lobe secretion. Many years ago Osius and I[7,9] fed rabbits on a high cholesterol diet and daily injections of posterior lobe extract. These animals showed marked atherosclerotic changes in the vessels, almost to the occlusion stage of the coronary arteries. This was in contrast to the control group, the group on high fat alone, and on posterior pituitary extract alone, the latter two groups showed about equal changes. If applied to the human this would give the posterior lobe a place in the production of arteriosclerosis in general and specifically in this instance, in diabetes mellitus.

Summary

The article stresses that the posterior pituitary hormone is a factor in insulin-resistant diabetes. Clinical, pharmacologic and experimental work show that the posterior lobe hormone is an inhibitor of insulin.

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TAXES FOR FOREIGN AID

During the ten-year period since the close of World War II, American taxpayers have "contributed" the equivalent of one year's total federal tax revenues to the so-called foreign aid program. Incidentally much of this has ostensibly been for the purpose of combatting the very Communist forces we helped build up.

The total foreign aid voted for the fiscal years 1946 to 1955 is some $69 billion. Because of this generosity was practiced with borrowed money under our system of deficit financing, more than a billion dollars in interest charges must be added to this figure. It is interesting to note that the toal federal revenues colleced by our government in fiscal year 1953 was just over $70 billion.

Another startling comparison brings the facts even closer home.

Michigan's share of the $69 billion of foreign aid voted in the past ten years has been $3,456,000. In 1953 the total state taxes collected in Michigan for state purposes was $582,444,000.

This means that Michigan taxpayers' share of the foreign give-away program in the past decade is the equivalent of the total state taxes collected for use in Michigan for a period of approximately six years.

This is a high price to pay for a program which has "bought" none of the benefits promised by the advocates of foreign aid.—Paul Shafer, Congressman Michigan, last official letter.

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The 1955 **Michigan Clinical Institute** will show you the way you can use today's tools; their limitations; their dangers; their merits.

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The 1955 **Michigan Clinical Institute** will be a new departure in postgraduate medical teaching. Outline of the program will be published in the November JOURNAL; the complete program (including résumés of all papers) will be published in The JOURNAL's M.C.I. issue (December).

Some of the thirty-eight subjects at the 1955 **Michigan Clinical Institute** suggest its modern, practical approach:

THOS. B. QUIGLEY, M.D.

"Use of Plaster in Common Injuries" (This intensely interesting color television presentation will be made by Thomas B. Quigley, M.D., Surgeon, Peter Bent Brigham Hospital, Boston), "Treatment of Fractures," "Prevention of Accidental Trauma," "The Newer Drugs in the Treatment of Malignancy," "The Management of Prematures," "The Significance of the Retention of Fetal Positions," "Hormonal Therapy," "Polio Vaccine," "Vascular Disease," "The Stress Syndrome," "Hypertension," "Heart Surgery," "Treatment of Rheumatic Fever with Gentisates," "Allergy," "Eye Changes in Systemic Disease," "Sinus Disease," "What's New in Psychiatry," "The Family Physician in Obstetrics," "Antibiotic Therapy in Urinary Tract Infections."

In all, forty-six teachers and clinicians will tell the story of "What's New, Doctor, That You Can Use?"

Doctor, schedule your time now to attend the 1955 **Michigan Clinical Institute,** Sheraton-Cadillac Hotel, Detroit, March 9-10-11, 1955. Write for hotel reservations to Committee on Hotels, Michigan Clinical Institute, W. L. Stodghill, secretary, Sheraton-Cadillac Hotel, Detroit.

What's New, Doctor, That You Can Use?

POSTGRADUATE CLINIC

The Michigan Academy of General Practice Postgraduate Clinic at the Sheraton Cadillac Hotel, Detroit, November 10-11, 1954, will feature W. B. Hildebrand, M.D., of Menasha, Wisconsin, President of the American Academy of General Practice, and Paul Williamson, M.D., Memphis, Tennessee, on "Future of the Family Physician."

Among speakers on the scientific program are Jerome Glaser, M.D., Rochester, New York; Edward Henderson, M.D., Montclair, New Jersey; C. J. O'Donovan, M.D., San Juan, Puerto Rico; Kenneth W. Thompson, M.D., Orange, New Jersey; Frank A. Finnerty, Jr., M.D., Washington, D. C.; Carl A. Bunde, M.D., Oklahoma City, Oklahoma; James L. Dennis, M.D., Galveston, Texas; Perry S. MacNeal, M.D., Philadelphia, Pennsylvania; Burton A. Waisbren, M.D., Milwaukee, Wisconsin; Benjamin M. Kagan, M.D., Chicago, Illinois; Julius Pomeranze, M.D., New York, N. Y.

Progress from Cooperation

Your new President welcomes this opportunity to thank the members of the Michigan State Medical Society for the honor and privilege of representing them in this official capacity. I assume the office with full knowledge of the long list of my distinguished predecessors, and with all humility, I shall attempt to represent the Society with dignity and achievement.

Michigan State Medical Society has had a distinguished record of progress and leadership in the profession of our State and nationwide. This has been accomplished through foresight and cooperation of its officers and committees over past years. Our House of Delegates, a truly representative body, has determined the pattern and policies with deliberation. And a training pattern has evolved that has served us well in the election of our officers. The work of the Society, both organizational and scientific, has been ably and faithfully promoted by over 300 members who serve on the Standing Committees and by some 200 additional members who assist the Council on special Council-appointed committees.

The Council may be proud in having selected an efficient Executive Director and staff. All these factors have become part of our wheel of progress.

It is, indeed, a pleasure and privilege to be but one cog in this wheel to represent, as President, such an alert and progressive organization in its progress toward the best in medicine for the profession and the public.

President's

Message

Robert H. Baker

President, Michigan State Medical Society

Editorial

MEDICAL EDUCATION

"I swear by Apollo, the physician, and Aesculapius . . . to teach them this Art if they shall wish to learn it, without fee . . . and that by precept, lecture and every other mode of instruction, I will impart a knowledge of the Art to my own sons and those of my teachers and disciples . . ."

SUCH is the opening statement of the Hippocratic Oath, which every doctor of medicine is supposed to have taken. This is one precept of several which are binding on those who profess to be true followers of the great teacher.

Attempting to learn how well our Michigan members have carried out their obligations, a survey was conducted which gave us some valuable information. The limited replies to a questionnaire reported that our individual members are providing support in whole for fifty-eight students, in part for twenty-two students. Fifty-five of these students are taking the M.D. courses. Support is also reported for twenty-three student nurses, seven dentists, one veterinary medicine student. Eighty-six replies were studied. This represents a very satisfactory condition, but not nearly enough are responding.

We have, however, received two detailed reports from the American Medical Educational Foundation. One contains a listing of each doctor who has contributed during 1953 to this fund, either directly to the AMA, or to his choice of medical schools. One hundred and thirty-one Michigan doctors gave $7,771.00 directly through the AMA; fifty-two doctors (from everywhere) gave $2,855.00 to the University of Michigan; and 467 gave $31,322.33 to Wayne University (soliciting for a Medical Library for the new college center).

Michigan doctors gave directly to thirty-seven different medical schools: to Wayne, 349; to Harvard, thirty-eight; Johns Hopkins, thirty-six; University of Michigan, twenty-eight; Jefferson, twenty-eight; Marquette, twenty-eight; Western Reserve, twenty-seven; Northwestern, twenty-four; Cincinnatti, nineteen; Loyola, sixteen; Louisville, fifteen; Dartmouth, fourteen; Pennsylvania, fourteen; Duke, nine; Boston, eight; Buffalo, 8; St. Louis, seven; Yale, six; Tulane, six; Rochester, six; Kansas, five; Creighton, five; Oregon, five; Virginia, 5; New York University, four; Women's Medical College of Pennsylvania, four; Tufts, three; Pittsburg, three; Georgetown, two; Chicago Med., two; Cornell, two; Vanderbilt, two; Vermont, two, and Minnesota, Albany, State University of New York and Tennessee, one each.

This is a very imposing record, but if the education of medical students in the United States is to be kept in private, rather than federal, control we must do even better.

MEDICINE AND SOCIAL SECURITY

THE medical profession has been opposed to certain features of the Social Security national legislation. We believed some features to be uneconomic and some definitely not suited to our requirements. Some we believed would retard the enactment of legislative programs which would much more easily meet our needs, especially in the matter of retirement.

The new amendments just enacted by the eighty-third Congress have made some very radical changes in the law. We believe our members will be interested and should study these features in considering what our next action will be. There definitely will be further action, because President Eisenhower, speaking in a nationwide radio-television program three days after Congress adjourned, promised to ask the next Congress to include doctors of medicine, osteopaths, dentists, chiropractors, veterinarians, naturopaths, and optometrists who are excluded this year.

Arguments Favoring Including Physicians

Arguments favoring including physicians are:

"A person is fully insured when he dies or reaches age sixty-five, if at any time in his life he has had at least one-quarter of coverage for every two calendar quarters after 1950. In any case, a worker must have had at least six quarters of coverage. When he has forty quarters of coverage, a worker is fully insured for life."

Under the new amendments which will go into effect January 1, 1955, the physician, if included, might expect to benefit in proportion to the length of time he has been a contributor, but the maximum will be $108.50 per month, assuming that

he had paid on earnings of the new rate of $350.00 per month. This retirement pay is subject to concellation if the recipient earns $100 any month or $1,200 during the year. This forfeiture holds under the present law to age seventy-five, after which a person may earn as much as he can. The new law has reduced this age of exemption to seventy-two. We believe this penalty should be completely removed.

For a person who becomes disabled or unfit for work, under sixty-five years there is no benefit. After reaching sixty-five, he may draw payments based on averaging the last ten years. The new law allows four years to be deducted in the last ten, unless he has earlier in his life amassed forty quarters of coverage.

A widow with dependent children under eighteen can benefit in scheduled amounts which may reach as high as $200.00.

"In 1954-1959, cost to the self-employed is $108.00 *annually,* payable in connection with federal income tax. The amount increases to $135 from 1960-64, to $162 in 1965-69, and $175.50 in 1970. Considering the investment of money involved and the returns from that investment, the proposition is a good one for either the older doctor or the young doctor—based on the income from either the retirement feature, or the income protection given the doctor's survivors under the plan."

Opposition to Including Physicians

Arguments against the joining of the Social Security program have been chiefly from the philosophical point that:

"Long term results of a trend toward Big Pensions and its sponsor Big Government are to be feared. Rewards by government for long life to all the people begins a leveling or averaging process that destroys individuality and initiative. It encourages the welfare state by placing responsibility for a great portion of our people solely in the hands of government."

Physicians believe the social security program might defer the plans which they have been advocating for many years to enact laws similar to those in force for years as regards business. The Reed-Keough-Jenkins bills proposed in recent years would allow us to plan our own retirement with better success, and in the long run, much better benefits. We believe *we* should at least be given rights equal to those of men in business and industry.

"Since approximately 50 per cent of physicians who retire after sixty-five do so after the age of seventy-four, this high percentage of retiring physicians would be required to make OASI payments to age seventy-two before they would receive any benefits (other than the survivors protection afforded their families). The plan is compulsory and does not "fit" the professional man. It may militate against the establishment of a voluntary plan, with tax deferments permitted, which is to be preferred over the compulsory plan. The plan is not based on insurance principles. It is wrong in principle from the standpoint of American traditions for it ultimately will place more government taxes on and controls over a free people."

We anticipate the next Congress will decide our ultimate inclusion or exclusion. Doctors of medicine and the other allied groups must decide. There are many arguments which must be considered. We have presented some of them here and over the years.

We accept Social Security for the nation as an accomplished fact. We believe some points should be improved. Make it voluntary for the self-employed; eliminate the penalty for working after having earned the pensions; eliminate Section 106 placing restrictions on the medical profession for certifying disability. There are enough safeguards in that division now.

The new law has many acceptable features for the self-employed that can easily be accepted, but should be voluntary.

REINSURANCE

IN the next Congress the medical profession must again be interested in the problem of "reinsurance." Last January, the President proposed a plan which has been advertised as allowing the nonprofit and voluntary plans to furnish health insurance to groups of people not now covered, and who under ordinary terms could not be insured. This sounded wonderful, but the bill as presented was far short. It actually was not reinsurance at all. It proposed a scheme whereby voluntary health plans which desired to cover new groups, or groups without sufficient experience, could apply to the Health, Education and Welfare department and after certain preliminaries and surveys be accepted for "reinsurance." The rate to be charged would be determined and insurance issued. This rate would be subject to revision at the end of three months.

The bill also provides that at the end of five years these insurance rates must have paid back the $25,000,000 advanced, together with interest and the bureaucratic expense of operation. The Government did not intend to lose by the plan. The

controls would hamper private enterprise and might result in federal absorption of the plans if reinsurance experiences were adverse.

The President has promised to reintroduce his plan. Again we will have to study its merits and maybe again urge that it be returned to the Committee. The plan so far outlined is absolutely unnecessary. Reinsurance is now in existence for health and accident policies, and has been successfully operated since 1915, and quite extensively since 1928. Blue Cross and Blue Shield have been providing reinsurance for nationwide coverage for some time. This could be extended if needed to cover any program contemplated.

There is a field of "reinsurance" which the Federal government might well investigate. The Veterans Administration is operating an essential reinsurance for veterans with service connected disabilities, providing home town care. This is the well known Michigan Plan now in operation quite generally. Veterans authorized for care may go to their own doctor. In our state the report is sent to Michigan Medical Service and paid. The assembled bills are then sent to the Veterans Administration with the addition of a service charge. In other words, the Veterans Administration makes post payments for this authorized care of veterans.

There are many people medically indigent or totally indigent who are essentially wards of the Government. Their care is now arranged for under the Michigan Department of Social Welfare, matching funds from the Federal Government. We believe authorization could be made by the Federal Government allowing the Social Welfare departments to take advantage of the insurance principle, and purchase coverage for their people. Or an arrangement could undoubtedly be made for a cost-plus plan similar to our Veterans Administration plan. We doubt if any private agency like MMS could finance this whole program as we are doing in the case of the veterans. There is, however, a possibility of co-operation and care for the unusual or impossible cases which the President wishes covered by his "reinsurance."

We believe it would be possible to formulate plans which would definitely not involve a subsidy, and yet extend health care to vast numbers who are not now able to buy their own insurance. Those are the people indicated by the proposed "reinsurance." They are definitely not included in the bills which were proposed.

ANOTHER FIRST?

IN the September, 1953, issue of THE JOURNAL of the Michigan State Medical Society we published an editorial of that title, ending with a question. We received a letter the last of August from C. C. Vermillion, M.D., associate director of Barnes Hospital, St. Louis, Missouri, questioning our priority. We submitted this letter and much material accompanying it to Vergil Slee, M.D., Hastings, who was directing the study to which we referred. We have asked Dr. Slee for an account of the work and objectives of his group, but this gives us an opportunity to give a formal reply as well as to give our readers some very interesting information of a research going on in our midst. That accounts for the two long letters in our Communications department.

CREDITS

THIS Diabetes number of THE JOURNAL owes much of its material to the voluntary and untiring efforts of William M. Le Fevre, M.D., Councilor of the Eleventh District, and an outstanding leader in the State Medical Society's work on diabetes detection and prevention. We thank you, Bill.

HIGHLIGHTS OF EXECUTIVE COMMITTEE OF THE COUNCIL

(Continued from Page 1072)

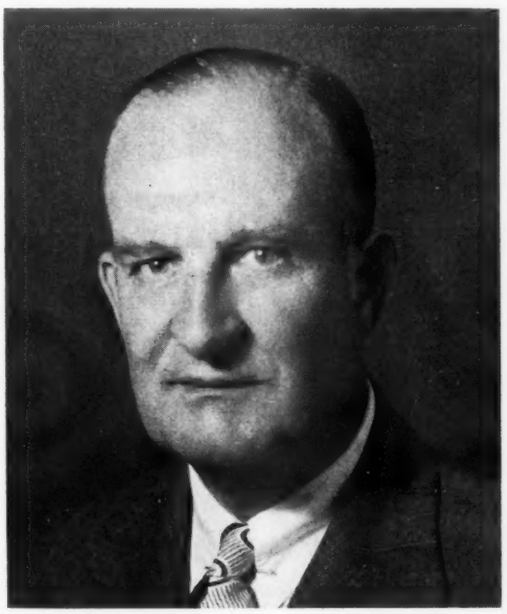
included a report on progress of good citizenship campaign and the making of three experimental sound-color television films—the first on "Medical Associates"—the report commented on the generous television and radio coverage of the Beaumont Memorial Dedication and the fine cooperation of the University of Michigan in this activity and stated that the St. Joseph County Medical Society has been successful in establishing a Medical Examiner System for its area, based on the enabling legislation sponsored by MSMS in 1953; on Michigan State College's new medical assistants courses.

- **A standing vote** of thanks was extended to Dr. and Mrs. Baker for their hospitality on this occasion. At dinner, John W. Paynter, Detroit, President of Michigan Hospital Service, joined the Executive Committee of the Council.

I Will Lift Up Mine Eyes . . .

Howard Philip Doub, M.D.

Howard Philip Doub saw the light of day for the first time on the broad, gentle, rolling slopes of the great Cumberland Valley (sometimes called the Hagerstown Valley) in the Old-Line State—Maryland. This portion of Maryland lies within the Appalachian Region and is part of the historic Shenandoah. It is no doubt from these hills and valleys that Howard Doub acquired the gentleness, serenity and strength which have been the fundamental principles in his successful life.



Howard Doub attended Western Maryland College, a well-known, but small, Methodist College located in Westminster, Maryland, from which he graduated in 1913. He matriculated in Johns Hopkins Medical School and received his medical degree in 1917. He received his formal training in radiology at Johns Hopkins in 1917-1918 and then migrated to Michigan. In a short time he became the Associate Radiologist at Grace Hospital, Detroit.

With his formal education completed, his thoughts turned to his romantic choice, the charming Helen Ringrose—also a native of Maryland—whom he met at Western Maryland College, and the Ringrose-Doub romance blossomed into marriage in 1919.

My first introduction to Howard Doub was in the year 1923 when he came to the University Hospital, Ann Arbor, to inspect the x-ray departments and examine their methods of keeping records. I was impressed with his meticulousness and thoroughness in detailed planning.

It was in the same year that Howard Doub, at the age of 32, became the "Chief" in Radiology at the Henry Ford Hospital. You will recall that the Henry Ford Hospital, at its inception, was staffed only with Johns Hopkins graduates. As this was one of Dr. Doub's many qualifications he received the appointment, and as a result of this appointment as Chief in Radiology at the Henry Ford Hospital many physicians in Michigan know Howard Doub only as "The Chief."

With his continued work at this great hospital Dr. Doub has become a radiologist of international renown. Yet, if you talk to this Michigan (by adoption and choice) radiologist you will realize that in his opinion he was chosen to be the 31st President of the American College of Radiology simply to perpetuate a Michigan tradition. It is true, two other Michigan radiologists both had held this honor and distinction, but those of us who know the high standards of the College and the exacting requirements of its members, fellows and officers, realize that Howard Doub, as the third President from Michigan, is adding glory to the College.

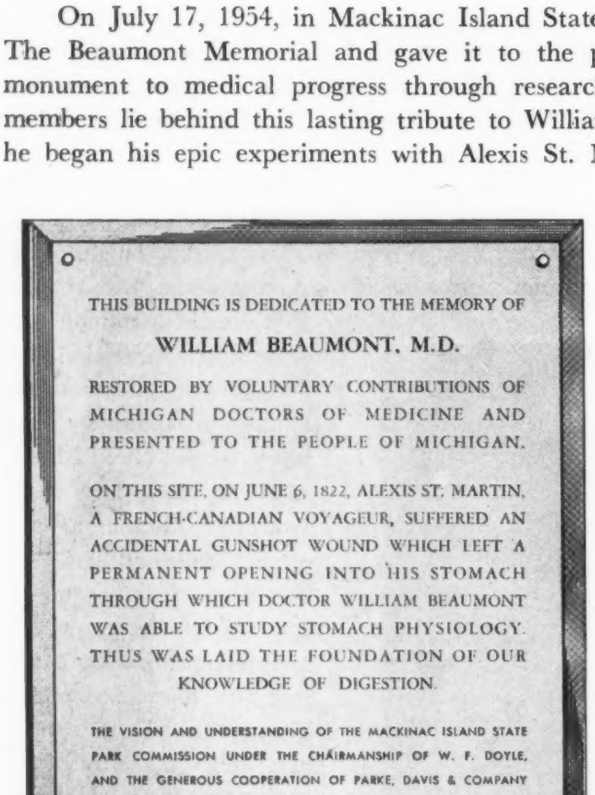
One of Howard's great moments occurred at the 1954 Michigan Clinical Institute. Along with Eugene Pendergrass, M.D., a guest speaker at the meeting, Howard received a scroll from the Michigan State Medical Society in recognition of his radiological contributions and honors, and he unhesitatingly tells one that "this is the proudest achievement of my career." He has written literally hundreds of scientific articles for medical journals, and as editor of the magazine "Radiology" has many outstanding editorials to his credit. It is indeed nice to know that Howard is still in his prime and that we can expect many more contributions from him to the field of radiology.

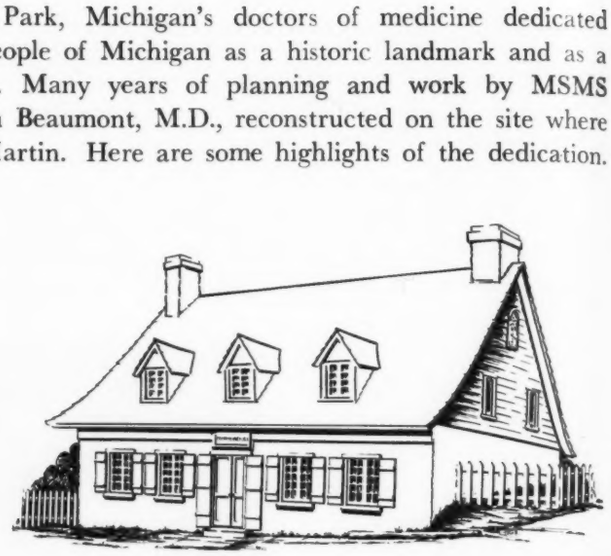
Howard Doub has other interests over and above medical procedures. He enjoys photography, loves to hunt and really exercises on the golf course. Here is an incident of years ago: The late Dr. Bob Funston accused him, in a foursome, of lifting up his eyes onto the hills, and in so doing his golf

(Continued on Page 1145)

The Beaumont Memorial

On July 17, 1954, in Mackinac Island State Park, Michigan's doctors of medicine dedicated The Beaumont Memorial and gave it to the people of Michigan as a historic landmark and as a monument to medical progress through research. Many years of planning and work by MSMS members lie behind this lasting tribute to William Beaumont, M.D., reconstructed on the site where he began his epic experiments with Alexis St. Martin. Here are some highlights of the dedication.


THIS BUILDING IS DEDICATED TO THE MEMORY OF
WILLIAM BEAUMONT, M.D.
RESTORED BY VOLUNTARY CONTRIBUTIONS OF MICHIGAN DOCTORS OF MEDICINE AND PRESENTED TO THE PEOPLE OF MICHIGAN.
ON THIS SITE, ON JUNE 6, 1822, ALEXIS ST. MARTIN, A FRENCH-CANADIAN VOYAGEUR, SUFFERED AN ACCIDENTAL GUNSHOT WOUND WHICH LEFT A PERMANENT OPENING INTO HIS STOMACH THROUGH WHICH DOCTOR WILLIAM BEAUMONT WAS ABLE TO STUDY STOMACH PHYSIOLOGY. THUS WAS LAID THE FOUNDATION OF OUR KNOWLEDGE OF DIGESTION.
THE VISION AND UNDERSTANDING OF THE MACKINAC ISLAND STATE PARK COMMISSION UNDER THE CHAIRMANSHIP OF W. F. DOYLE, AND THE GENEROUS COOPERATION OF PARKE, DAVIS & COMPANY ARE GRATEFULLY ACKNOWLEDGED.
JULY 17, 1954
MICHIGAN STATE MEDICAL SOCIETY



New Shrine Symbolizes Medical Progress

Opposite page.—(Upper left) Memorial plaque. (Lower left) Representing the Army at the dedication was **Brig. Gen. Elbert DeCoursey, M.D.,** director of the Armed Forces Institute of Pathology, Washington, D. C. Here he chats with **Dr. Scheele** (left). (Upper right) The Beaumont Memorial. (Center) "The Beaumont Memorial symbolizes the advances made against disease and death because of the joint effort of physician and scientist," **Leonard A. Scheele, M.D.,** Surgeon General of the U. S. Public Health Service, said in his dedication address. (Lower right) **Otto O. Beck, M.D.,** Birmingham, chairman of the Beaumont committee, was in charge of ceremonies.

This page.—(Upper right) Climax of the dedication came when **L. W. Hull, M.D.** (right), of Detroit, President of MSMS, presented **W. F. Doyle** (left) with a conveyance giving the Beaumont Memorial permanently to the people of Michigan. The document is now in the treasured archives of the State. (Right center) **W. F. Doyle,** Resident Commissioner of the Mackinac Island State Park Commission, and former Commission Chairman, expressed gratitude in behalf of Michigan's citizens. Behind Doyle are (left to right) **Leslie O'Brien,** Mayor of Mackinac Island, **Mrs. Curran P. Boyer,** president of the Historical Society of Michigan, and **Brig. Gen. DeCoursey.** (Bottom) The evening preceding the dedication members of the Memorial Committee held a windup session at Grand Hotel. Seated, left to right, are: **Professor Emil Lorch, AIA; L. J. Hirschman, M.D., Otto O. Beck, M.D.,** chairman; **Homer A. Fritsch,** representing **H. J. Loynd,** president of Parke, Davis & Co.; and **J. H. Fyvie, M.D.** Standing are, left to right: **C. T. Ekelund, M.D.; W. F. Doyle; W. S. Jones, M.D.; A. H. Whittaker, M.D.** and **William M. LeFevre, M.D.** Not pictured are **F. A. Coller, M.D.,** and **S. W. Hoobler, M.D.**

Three of the most interested guests at the Beaumont Memorial ceremonies are shown above with Dr. Scheele. Pictured left to right are **Mrs. George Brotherton** of Green Bay, Wisconsin, **Dr. Scheele, Mrs. George C. Stokes** of Flint, and **Mrs. Otto Brown** of Stambaugh. Mrs. Brotherton and Mrs. Brown, sisters, are great-granddaughters of Dr. Beaumont, and Mrs. Stokes is a great-grandniece. Behind the guests is the Dean Cornwall painting of Dr. Beaumont and St. Martin, which is now housed in the Memorial.

Appeal for Additional Funds

All MSMS Members who have not contributed to their Beaumont Memorial Project—and those doctors who have already contributed but who stated "Call upon me if you need additional help"—are now invited and urged to send checks for completing the furnishing of the Beaumont Memorial.

Michigan Health Council Program Defines Areas of Responsibility in Health

In defining the areas of responsibility in Health, one quickly recognizes the important part played by the doctor of medicine.

Also immediately obvious to even the casual observer is the important position of the consumer of health services.

While the M.D. has a direct-line contact with the consumer of health, a vast number of ancillary health activities lie in the area proximate to both physician and consumer (Chart I).

look to the doctor of medicine for the answers to community health questions. Both the M.D. in private practice and the Public Health officer are able to provide health information and guidance which, if followed, will lead to successful fruition of any community health program. When the two are given the opportunity of joint consideration of a local health problem, the community program thrives.

Thus, seeking counsel and guidance of the local

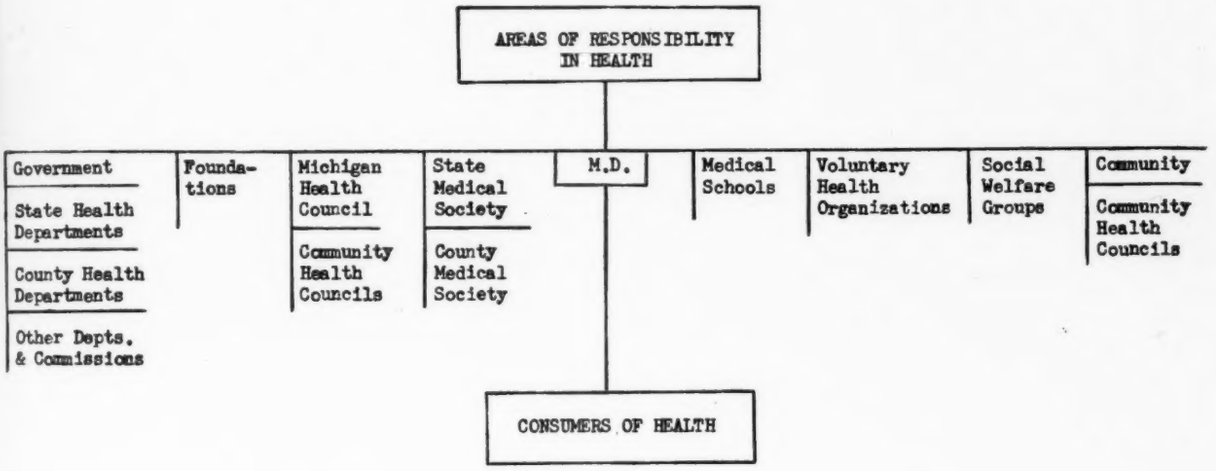


Chart 1.

In our modern pattern of living, these various health groups function to provide numerous worthy health services. They also have accepted certain responsibilities which they must fulfill.

Cutting across these health organizations (organization-wise) is the Michigan Health Council organized in 1943 by Michigan State Medical Society, Michigan Hospital Service, Michigan Medical Service and Michigan Hospital Association.

Conceived as an organization designed to work closely with the ancillary groups, Michigan Health Council has developed projects which provide service and information both to the Doctor of Medicine and the consumer of health services.

In each of these projects, Michigan Health Council urges the participating Community or organization to recognize its own responsibility. The effect of this effort can best be illustrated in two of the Council's major projects, namely, the Community Health Council Organizational program and the M.D. Placement project.

Community Responsibility Defined

In working with community groups interested in health, MHC first urges the local organization to

M.D., and the Public Health officer is the first responsibility of the community. Its second responsibility lies in accepting and following this guidance.

Conversely, it is the responsibility of the M.D. and the Health director to provide the participation and counsel when it is sought.

Michigan Has Good Record of Co-operation

Ever since the present expanded activities program was launched five years ago, this pattern of mutual participation has been accepted and followed in more than sixty communities in which MHC has worked. Its effectiveness can best be measured by the success of the forty-five Community Health councils now functioning in various parts of the state.

M.D. Placement Brings New Responsibility To Community

Communities do not always face up to their own responsibilities in their efforts to procure an M.D. Such basic factors as (1) actual need, (2) utilizing the M.D.'s services once he arrives, (3) accepting the M.D. and his family into the com-

munity, and (4) providing school, religious and social facilities, are among the basic responsibilities which a community occasionally fails to recognize.

In working with more than 125 Michigan communities which have registered with the MHC Doctor Placement service, we have urged their attention to these, as part of their area of responsibility in health.

date it has presented 118 doctors of medicine, 29 public health people, 20 representatives from the nursing profession and 95 persons representing other health interests.

According to current commercial TV survey listings, the program carries a 1.5 rating which, in the Detroit Area, represents between 30,000 and 40,000 TV sets receiving the program.

MICHIGAN HEALTH COUNCIL OFFICERS for 1954 are: *(left to right)* L. Gordon Goodrich, Detroit, treasurer; Herbert Estes, Ann Arbor, vice president; H. B. Zemmer, M.D., Lapeer, president; J. S. DeTar, M.D., Milan, medical advisor, and Hugh W. Brenneman, Lansing, secretary.

MHC Doctor Placement Project Expanded

Ever since the M.D. Placement project was turned over to MHC in 1953, the project has been steadily expanded.

During that period contact has been established with 377 M.D.s interested in general practice and thirty-seven men seeking a location to practice their specialty. During the same period, thirty-three Michigan Hospitals with training programs agreed to co-operate with the plan and the two Michigan Medical Schools have provided full co-operation.

One-hundred-thirty-seven communities have registered with the service and eighteen hospitals have sought staff personnel.

In the summer of 1953 and again in June 1954, the AMA sent representatives to Michigan to study our plan. In 1953 they studied the MHC system and controls and in June 1954 they made a conducted field trip throughout Michigan, studying the community service plans and the different types of community effort utilized in doctor placement activities. This data will be published by AMA.

To date MHC has been involved indirectly in fifty-four placements in Michigan, and directly instrumental in twenty-five placements. The MHC doctor placement activities are guided by the MSMS Committee on Rural Medical Service.

Court of Health TV Series in Third Year

June 1954 marked the start of the third consecutive year for the "Court of Health" television series. This half-hour telecast, carried weekly over WJBK-TV, Detroit, is produced by MHC. To

All production costs are borne by the Michigan Health Council. The activities are guided by a special Television committee with qualified representation from MSMS including: R. W. Teed, M.D., chairman; B. M. Harris, M.D., Lawrence A. Pratt, M.D., O. Todd Mallery, Jr., M.D., Otto K. Engelke, M.D., and Herbert Estes, vice president of Michigan Health Council.

The program has given the medical profession an opportunity to meet with laymen and representatives of other professions to discuss important health subjects and objectives in a favorable, informal atmosphere and at the same time, take the message to more than 40,000 people each week. Present plans envisage even more dramatic, factual presentations of health information and progress during the coming months.

Appraisal Project Points Up Responsibilities

At the request of MSMS and Michigan Heart Association, Michigan Health Council accepted the invitation to stimulate activities in the Periodic Health Appraisal project.

Handling the secretarial details with the guidance of a committee of Doctors of Medicine chosen by the MSMS, the first exploratory meeting was held in Jackson on October 10, 1951.

The committee accepted the responsibility of developing details of the periodic health appraisal idea through a series of meetings and discussion sessions.

On August 17, 1954, the committee decided that the responsibilities in such a program of annual or periodic physical examinations clearly divide into two areas, (1) responsibility of the M.D., and

(2) responsibility of the public. It therefore was the sense of this committee that the program should be clearly divided into two parts, one of which would be designed to acquaint the Doctor of Medicine with the program and the second to inform the public on how it could participate.

To pursue their first responsibility, the committee defined and set into motion a comprehensive educational program directed toward the re-emphasizing of this important concept to the M.D.

Rural Health Conference Delineates Areas

The eighth annual Michigan Rural Health conference, scheduled for East Lansing on January 20-21-22, 1955, will pursue a pattern established several years ago which clarifies and defines Areas of Responsibility in Health.

In a dramatic courtroom atmosphere, "The Court of Public Appraisal" met at the fifth annual conference and heard "testimony" from representatives of (1) Medical School faculty and students, (2) Doctors of Medicine (3) organized voluntary health organizations, (4) government, and (5 consumers of health. Each was asked to defend the aims, objectives and effectiveness of current programs in his respective orbit.

The central theme of last year's conference pointed out the responsibility of: (1) community, (2) industry, (3) public health, and (4) medical profession, in the fast growing, fringe area, residential sections.

The conference this year will again explore these areas of responsibility and bring in additional ancillary and related groups to study, discuss and plan for greater understanding and co-operation.

Responsibility Unlimited

Part of America's economic strength lies in the willingness of its citizens to accept responsibility.

Business, industry and the professions have developed effective programs based on a mutual understanding of needs and services.

Michigan men of medicine readily recognize their responsibilites, and are meeting them in many different ways. As they serve on committees, attend innumerable meetings, conferences and planning sessions, they are providing counsel and guidance which can come from no other source; the MHC is one medium for making their work and advice more available to the public.

Through its various projects, its publications, its Community Health councils and its other activities, Michigan Health Council will continue to call to the attention of the people of our state, the many worthy things being done by members of the medical profession.

MHC PROJECTS HELP DEFINE AREAS OF RESPONSIBILITY IN HEALTH

Membership Enrollment Campaign	Michigan Health Council Bulletin
Annual Michigan Rural Health Conference	Film Information Service
Community Health Council News	Michigan Health Council Film
Community Health Council Organizational Activities	Annual Awards
Michigan Health Council Television Show	Periodic Health Appraisal
Community Health Council Service Bureau	M.D. Placement Service
Clearing House on Health Questions	Miscellaneous Services
Michigan Health Council Directory	Medical Associates Procurement

I WILL LIFT UP MINE EYES

(Continued from Page 1139)

ball landed in a bunker. As a rule, Howard keeps his eye on the ball—he plays hard at work and works hard at play—but the hills are as important to him now, even on a golf course, as they were in High School and Preparatory College where he was known as "the boy from the hills."

At a recent banquet given in honor of Dr. Lawrence Reynolds, another eminent Michigan radiologist, Dr. Doub was the official representative of the American College of Radiology, and Dr. Cyrus C. Sturgis, Professor of Medicine at University of Michigan and a classmate of Dr. Doub in the 1917 class at Johns Hopkins, was the toastmaster. After Dr. Doub's glowing tribute to Dr. Reynolds, Dr. Sturgis remarked "If Howard had done as well at Johns Hopkins as he did in paying tribute to Larry, he would have been first in his class rather than second." Dr. Sturgis in his levity sounded a harmonious chord in the pattern of Howard's life. His sterling, simple virtues of industry, patience and love of truth were destined to make him a leader in his chosen field of radiology.

—Clyde K. Hasley, M.D.

Michigan's Department of Health

Albert E. Heustis, M.D., Commissioner

ADDITIONAL TB PROJECTS APPROVED

Two additional local projects have been approved in the expanded tuberculosis control program. Both have to do with ways of handling the problem of tuberculosis in the state's migrant labor force. The projects are in Bay County and in Saginaw County. In each county a nurse is employed for special work among migrant laborers.

THIRD MULTIPLE SCREENING STUDY

Michigan's third industry-based pilot study in health screening for adults was carried on in Alpena in late August and early September, in the Besser Manufacturing Company and the Huron Cement Company. Working together in the study were management and labor in the plants involved and members of the local medical society, with District Health Department Number Four giving local direction and the Michigan Department of Health assisting.

As in the preceding studies in Munising and Otsego, participation of the employes was entirely voluntary and the screening was done on company time.

Procedures included in the screening were checking of height and weight, blood pressure, hemoglobin, blood specimens for syphilis and diabetes, chest x-ray for tuberculosis, heart abnormalities and cancer of the lungs, and urine specimens for albumin, sugar and urinary sediment tests.

Reports were furnished to the physician named by the person examined and to the health department for assistance in follow-up.

The person with significant findings was notified that the results of his tests had been reported to his physician and was urged to get in touch with his physician promptly. The local health department will follow through on these persons to make sure, if possible that they see their physicians and return to them for any needed treatment.

The person with negative findings was notified that his screening indicated no abnormal conditions but that the screening was in no sense a thorough examination and gave no final proof that everything was as it should be.

The pilot studies are being undertaken to add to the relatively meager information on the value of screening as a device for finding incipient chronic disease in apparently-well adults and on the effectiveness of this approach in motivating persons to secure needed medical examination and treatment. The studies will help to define the degree and scope of the chronic disease problem in the population groups screened. They will help to determine what screening levels are practical. They will also furnish data on the costs of a screening program, to indicate whether results justify the expenditure.

It is hoped that the studies will serve to work out a mutually satisfactory pattern of community co-operation between health departments, practicing physicians and interested agencies and groups in the community in promotion of health of adults, with the health departments serving as expediting agents in finding persons in need of medical examination and care and getting those persons into the office of their family physician.

* * *

INFECTIOUS HEPATITIS HIGH

Infectious hepatitis is unusually prevalent in Michigan this year. The number of cases reported up to September first is higher than for the entire year of 1953. Physicians are reminded that the disease is reportable, and are urged to report promptly.

An adequate amount of gamma globulin is available for the prophylactic injection of household contacts of cases of infectious hepatitis.

NEW VISION PAMPHLET AVAILABLE

A leaflet that physicians may find useful is "Questions Parents Ask About Glasses," just issued by the department. It answers briefly and simply some of the questions that constantly recur in the work of the vision unit. This is somewhat of a companion leaflet to "If Your Child Has a Hearing Loss" which answers some of the common questions that parents ask about hearing.

Both pamphlets are available from local health departments or from the State Health Department without charge.

The growth of disseminated breast cancer in bone results in breakdown of bone tissue and a loss of the calcium of which it is composed. The patient then excretes more calcium than is taken in through the diet.

* * *

It has been established that viruses can be trained to destroy cancer in experimental animals.

* * *

By the use of normal and cancer cells growing side by side and at the same rate, certain compounds related to building blocks of nucleic acids have now been found to be one thousand times as injurious to cancer as to analagous normal cells.

* * *

Sustained growth of human cancer in tissue culture has now been achieved.

* * *

Regular and rapid growth of human cancer in laboratory animals is now possible.

* * *

It has been revealed that human melanoma tissue, the most malignant cancer type, is dependent on the pituitary hormone, intermedin, for its growth.

* * *

Only by means of a simple blood test, a reaction for cancer given by the blood of presumably well individuals, will the detection of early cancer on a large scale be possible. Unfortunately, such a test is not yet known.

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Low Calorie Cottage Cheese

A fresh cultured Cottage Cheese with *no cream added* and *no salt added!* An appetizing source of milk's complete proteins, minerals and B vitamins. Small tender curds and sweet, fresh flavor. This low-calorie, high-nutrition food can be used in scores of easy-to-prepare, tasty dishes!

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In Memoriam

ARTHUR O. BOULTON, M.D., of Gladwin, who retired from practice several years ago after serving that community for forty-four years, died May 13, 1954, at the age of seventy-nine.

A native of Moorestown, Ontario, Dr. Boulton was a graduate of the former Detroit College of Medicine. He practiced briefly at Sault Ste. Marie and in Lapeer County before moving to Gladwin.

Dr. Boulton was an Emeritus member of the Michigan State Medical Society.

Surviving are his wife, Rose; a son, Lieut. Commander Thomas Boulton, a professor at the United States Naval Academy, Annapolis, Maryland; a sister, and three grandchildren.

HENRY F. CROSSEN, M.D., died June 20, 1954, at the age of sixty, following a brief illness. He had been a resident of Detroit for the last thirty-five years.

Dr. Crossen was on the medical staff of the Detroit House of Correction and St. Joseph Hospital. He was a member of the American College of Surgeons and the American Academy of Ophthalmology and Otolaryngology.

He was a native of Minnesota and a graduate of Indiana University, 1919.

Surviving are his widow, Mary E., and three sons.

JAMES C. DROSTE M.D., of Grand Rapids, died May 7, 1954, in Toronto, Ontario, where he had been a hospital patient for several months. He was sixty-seven years old.

Dr. Droste was co-founder and secretary-treasurer of Ferguson-Droste-Ferguson Hospital, where he served as staff surgeon and chief of staff. The hospital was established in 1928. From 1944 to 1946 Dr. Droste was secretary-treasurer of the executive staff of St. Mary's Hospital, Grand Rapids, and served as consultant on proctology.

A native of Grand Rapids, Dr. Droste attended St. Jerome College at Kitchener, Ontario, and the University of Michigan. He received his medical degree from the University of Illinois in 1913 and served his internship at St. Mary's Hospital in his native city.

Dr. Droste was a member of the National Gastroenterological Society. Survivors include his wife, Ada Katharine, two sons, two brothers, three sisters, and two grandchildren.

WILLIAM A. HAGEN, M.D., who practiced medicine in Muskegon County for fifty-two years, died June 21, 1954. He was seventy-seven years of age.

A native of Trenton, New Jersey, Dr. Hagen moved with his family to Muskegon County as a child and attended school there. He received his medical training at Baltimore Medical College and Grand Rapids Medical

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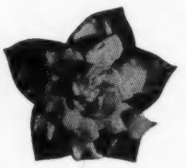

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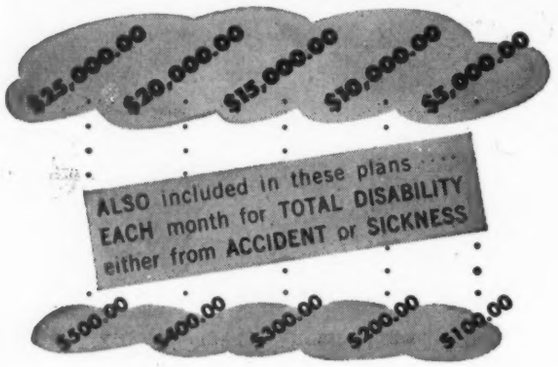

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WILLIAM A. HAGEN

(Continued from Page 1150)

College, setting up practice in Muskegon in 1902. From 1905 to 1923 he practiced in the community of Ravenna. He then returned to Muskegon.

Dr. Hagen is survived by his wife, Jenny; a son, William A. Hagen, Jr., currently an electrical engineer in Frankfort, Germany; two daughters, Mrs. G. S. Smith of Milwaukee and Miss Florence Hagen of Grand Rapids; a sister and two grandchildren.

ALBERT H. KROHN, M.D., of Detroit, died June 2, 1954, at the age of sixty-one years.

A native Detroiter and regimental surgeon of the 116th Infantry in World War I, Dr. Krohn was graduated in 1917 from the Detroit College of Medicine, now Wayne University College of Medicine.

Dr. Krohn is survived by his widow, Sara; two sons, Bernard Krohn, M.D., of Bellflower, California, and Captain Lawrence Krohn of Fort Knox, Ky.; a brother and three grandchildren.

ARTHUR BUTLER McGRAW, M.D., a surgeon at Henry Ford Hospital, Detroit, since 1922 and surgeon in charge of the tumor clinic there since 1932, died June 18, 1954, at the age of sixty years.

Dr. McGraw was considered to be one of the country's foremost students of cancer. He joined the staff of Henry Ford Hospital as a junior surgeon, becoming an associate surgeon in 1927, when he was appointed surgeon in charge of the division of general surgery. He first served as assistant and later as associate of the late Roy B. McClure, M.D., developing an interest in thyroid and breast surgery which he maintained throughout his life.

Dr. McGraw was a member of numerous professional societies. He was a Fellow of the American College of Surgeons, the New York Academy of Medicine, and the Detroit Academy of Surgery, and was a founder member of the American Board of Surgery. During World War I, Dr. McGraw was a private in the Army Medical Corps, attending medical school. In World War II, he served with the United States Navy from 1942 to 1946, rising to the rank of captain. In recognition of his cancer follow-up system devised for the Henry Ford Hospital Tumor Clinic, Dr. McGraw was appointed in 1950 to the position of Associate Professor of Surgery (oncology) at Wayne University College of Medicine.

Dr. McGraw was graduated from Yale in 1915, and received his M.D. degree from the College of Physicians and Surgeons, Columbia University, in 1919. He served two years' internship at St. Luke's Hospital in New York. A native of Detroit, Dr. McGraw came from a well-known family. His great-uncle, Theodore A. McGraw,

(Continued on Page 1154)

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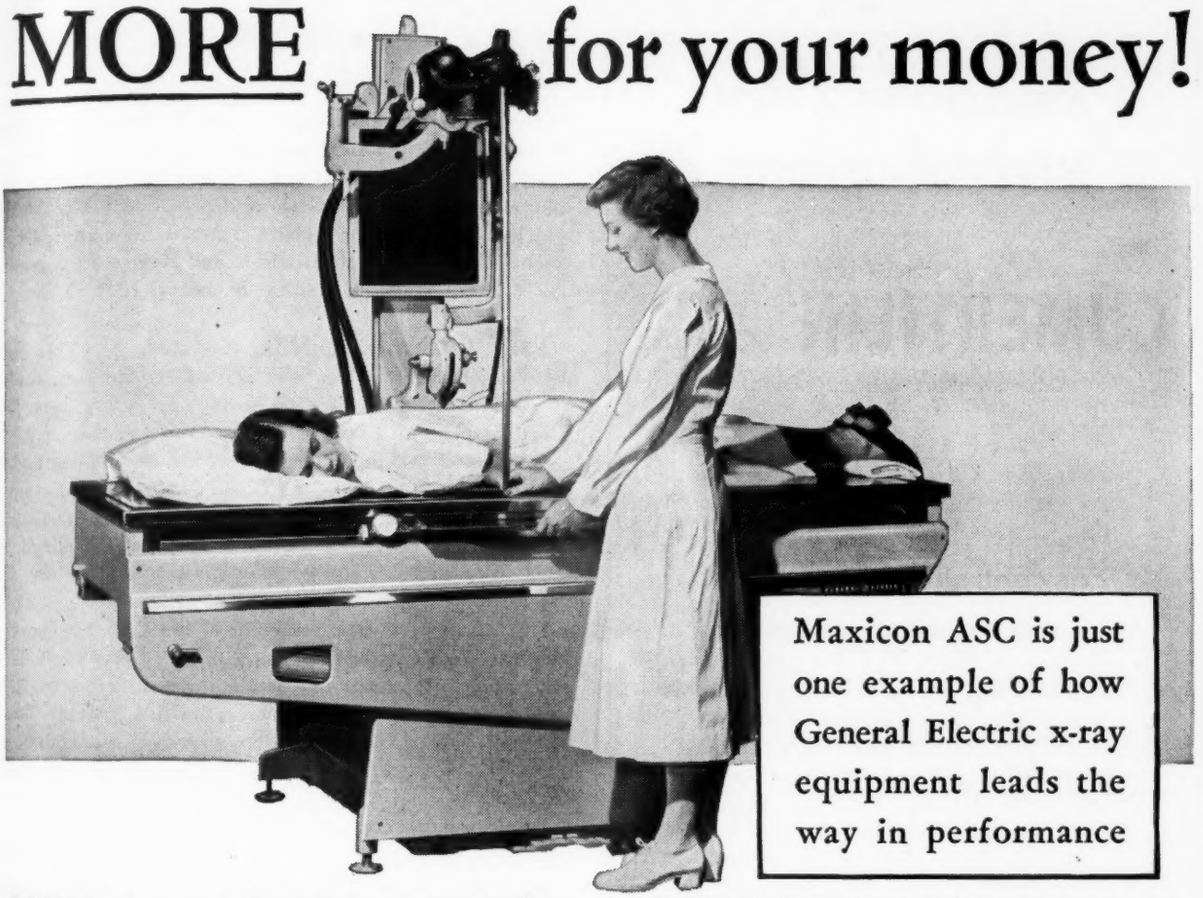

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Counterbalanced tube stand, providing adjustable focal-film distances up to 40 in.	YES	NO	NO	NO
Signal-light centering system for Bucky radiography	YES	NO	NO	NO
Provision for cross-table radiography	YES	NO	NO	NO
12-step line-voltage compensator	YES	NO	NO	NO
Automatic selection of large or small focal spot	YES	YES	NO	NO
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ARTHUR BUTLER McGRAW

(Continued from Page 1152)

M.D., was one of the founders and for many years dean of what is now Wayne University College of Medicine.

Dr. McGraw is survived by his wife, Leola; two daughters, Grace I. McGraw and Mrs. Sarah M. Cinelli; and two sons, both physicians, Thomas A., a graduate of Cornell Medical School in 1951, and Robert S., a graduate of Johns Hopkins Medical School in 1954.

ESLI T. MORDEN, M.D., died June 1, 1954, ending more than fifty years of service to the community of Adrian. Born in Adrian seventy-six years ago, Dr. Morden spent his entire professional life in that city.

The son of a doctor of medicine, Dr. Morden attended public school in Adrian, graduating from the Michigan College of Medicine and Surgery, Detroit, in 1901, and from Chicago Eye, Ear, Nose and Throat College in 1902. For the first six years of his professional life, he practiced with his father.

Dr. Morden was past president of the Lenawee County Medical Society, the Adrian Club, Rotary Club and other civic organizations. He had been active in Red Cross, the Chamber of Commerce, and the YMCA. During World War I, Dr. Morden served as a member of the Army Medical Corps, being discharged with the rank of captain.

Dr. Morden is survived by his widow, Florence.

WALDRON W. WELLMAN M.D., of Holly, died suddenly May 23, 1954, at the age of forty-nine years. He had practiced in that community for nine years.

Born in Richmond, Michigan, Dr. Wellman was graduated from Mt. Clemens High School and attended Highland Park Junior College, before entering the University of Michigan. He received his M.D degree at the University in 1930.

Before moving to Holly, Dr. Wellman practiced in Grosse Pointe, following his internship at St. Joseph's Mercy Hospital, Detroit.

Dr. Wellman is survived by his wife, Kathleen; a daughter, Janet; two brothers and a sister.

FRANK C. WITTER, M.D., Chief of the Surgical Department at Highland Park General Hospital for more than thirty years, died May 8, 1954, following a brief illness. He was seventy-five years of age.

Dr. Witter was born in Lawrence, Michigan, and attended University of Michigan Medical School. Following his graduation in 1906, he remained at the University on the staff of Reuben Peterson, M.D., Professor of Obstetrics and Gynecology. Moving to Petoskey in 1909, Dr. Witter practiced there until 1918, when he moved to Detroit.

When Highland Park General Hospital was built in 1921, Dr. Witter was selected as Chief of the Surgical Department. He remained there in that capacity until 1952, when he retired as chief but continued private practice with his son, Joseph A. Witter, M.D. Upon the occasion of Dr. Witter's 25th anniversary with High-

(Continued on Page 1170)

VAGINAL ANATOMY AND CONCEPTION CONTROL

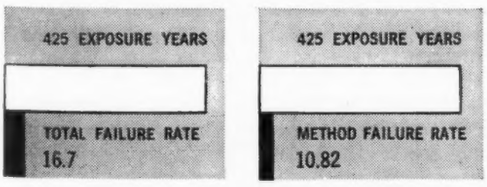
Another observation based on 425 patient years of exposure

According to a recent comparative study by Guttmacher and co-workers,[1] vaginal anatomy and parity apparently play important roles in the selection of a contraceptive method. Using the jelly-alone method, they found that markedly greater protection was afforded to women of low parity, and suggested that the jelly "might be confined to the region of the external os more successfully in the less relaxed vagina."

Of 325 women who used the jelly-alone [RAMSES® VAGINAL JELLY] technic for periods ranging from three months to three years, 36 percent were primiparous. The statistically valid data, based on 425 patient years of exposure, definitely indicate that the jelly-alone method of contraception was considerably more effective "among patients of lower parity."

The use of jelly alone as a contraceptive measure proved highly successful in the entire group, and only a few unplanned pregnancies occurred. These were either considered as (1) patient failures, comprising those instances in which the patient admitted complete omission or irregular use of the jelly, or as (2) method failures, where the patient claimed regular and careful use of the jelly.

The total unplanned pregnancy rate averaged only 16.7 per 100 patient years of exposure. If method failures alone are calculated, the unplanned pregnancy rate was reduced to 10.82 per 100 patient years of exposure.



Effectiveness of RAMSES VAGINAL JELLY as contraceptive measure in 325 patients during 425 patient exposure years[1]

It is apparent from this study that RAMSES VAGINAL JELLY is markedly effective in the jelly-alone technic, and that it is a "method of choice" for most nulliparous and primiparous patients.

Anatomic considerations, however, should not be the sole criteria used in the selection of a contraceptive method. Such factors as patient intelligence and cooperation, as well as the sincere desire for conception control, are also of paramount importance. Thus, the choice of method must, in the end, depend upon the physician's evaluation of the individual patient.

When in the judgment of the physician, parity, anatomic factors, or motivation indicates the use of the diaphragm-and-jelly method of contraception, the RAMSES® TUK-A-WAY® Kit is recommended. The RAMSES® diaphragm is flexible and cushioned — providing an optimum barrier with utmost comfort. In combination with RAMSES jelly, it offers an unsurpassed contraceptive technic — and both products are **accepted by the appropriate Councils** of the American Medical Association.

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*Active agent, dodecaethyleneglycol monolaurate 5%, in a base of long-lasting barrier effectiveness.

1. Finkelstein, R.; Guttmacher, A., and Goldberg, R.: Am. J. Obst. & Gynec. 63:664, Mar., 1952.

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Communications

To the Editor:

Resolution

WHEREAS, The actions of the National Board of Medical Examiners of the United States have been and are incompatible and in violation of Act No. 237, P. A. of 1899, and Acts amendatory thereto, the Medical Practice Laws of Michigan,

BE IT RESOLVED, That on and after November 1, 1954, the Michigan State Board of Registration in Medicine will not accept or endorse the Certificate of Examination of the National Board of Medical Examiners of the United States as a basis for registration and licensure to practice medicine in Michigan.

MICHIGAN STATE BOARD OF REGISTRATION IN MEDICINE
J. EARL MCINTYRE, M.D.
Executive Secretary

Lansing, Michigan
September 1, 1954

* * *

Dr. Wilfrid Haughey, Editor
Journal of the Michigan State Medical Society
610 Post Building
Battle Creek, Michigan

Dear Sir:

A few months ago, your editorial entitled "Another First?" on page 994 of Volume 52 of the Michigan State Medical Society JOURNAL was brought to our attention, and we were finally able to obtain a copy of this a few days ago.

We feel that your pride in the development of a method of analyzing hospital experience by punched-card methods is very justifiable, but we wish to question priority of this method which is suggested in your editorial. We assume that you are referring to the procedure conducted by the Southern Michigan Hospital Council under the grant from the Kellogg Foundation.

At Barnes Hospital in St. Louis, we have had a punched-card system of analysis of medical record diagnosis and statistics for many years. In 1952, we began using the diagnostic punched cards to prepare a diagnostic file similar to, but somewhat more extensive than, that subsequently developed by the Southern Michigan Hospital Council. For several years previously, we had accumulated patient statistics information by punched card methods. In 1953, we revised this method and now have our entire admission analysis and discharge analysis on punched cards. In both of these analyses, the number of patients is counted with distribution both by physicians and services. In the discharge analysis, further distribution is done by condition of the patient on discharge, average days stay on various services, number of consultations and several other factors relevant to medical analysis, such as analysis of tissues removed at operation, wound infections, both clean and otherwise, and other complications.

We know of no other installation in the country which has developed this procedure to the extent which we have here, and for this reason prepared our article which was published in *Modern Hospital* in April, May and June of this year. If there has been any publication of a comparable system, we are not aware of it. We would appreciate any information which you can give us as we have been asked to present a discussion on this subject before

(Continued on Page 1158)

Say you saw it in the Journal of the Michigan State Medical Society

NOT ARTHRITIS BUT ARTHRALGIA...

If the patient complaining of aching joints is a woman between 37 and 54 years of age, it is highly possible that she is suffering from arthralgia rather than arthritis.[1] It has been estimated that arthralgia occurs in about 40 per cent of women with estrogen deficiency, and is exceeded in frequency only by symptoms of emotional or vasomotor origin.[2] In fact, arthralgia may be as indicative of declining ovarian function as the classic menopausal hot flushes.

Arthralgia, however, is just one of a vast number of distressing but ill-defined symptoms that may be precipitated by the loss of estrogen as a "metabolic regulator." Other good examples are insomnia, headache, easy fatigability, and tachypnea.

Because these symptoms sometimes occur years before or even long after cessation of menstruation, they are not always readily associated with estrogen deficiency, and the tendency may be to treat them with medications other than estrogen. Obviously, sedatives and other palliatives cannot be expected to produce a satisfactory response if an estrogen deficiency exists. Only estrogen replacement therapy will correct the basic cause of the disorder.

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1. Greenblatt, R. B., and Kupperman, H. S.: M. Clin. North America *30*:576 (May) 1946. 2. McGavack, T. H., in Goldzieher, M. A., and Goldzieher, J. W.: Endocrine Treatment in General Practice, New York, Springer Publishing Company, Inc., 1953, p. 225.

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(Continued from Page 1156)

the annual meeting of the Medical Record Librarians at their coming National Convention in Detroit.

Please do not feel that we are minimizing the work of the Southern Michigan Hospital Council. We feel that their independent application of punched card procedures confirms our impression of the value of the system in both medical studies and hospital administration experience.

Sincerely,
C. O. VERMILLION, M.D.
Associate Director

St. Louis, Missouri
August 26, 1954

* * *

Dear Doctor Haughey:

Thanks for sending me the correspondence with Doctor Vermillion. I have re-read your editorial and the paper by Bradley, Vermillion and Anderson. I don't see much to be gained by controversy over priorities in this matter.

We make no claim to being first to apply machine methods in medical record room indexing and medical service analysis. As is stated in Part I of Doctor Vermillion's article (April, 1954, *The Modern Hospital*) ". . . many institutions in the country had already applied these methods to medical records." The practice is so well established that we have not attempted to review its history. For example, the University of Michigan and the Mayo Clinic have both abstracted a great deal of medical information on patients onto punched cards since the early 1930's. These have been used as medical room indexes of an extremely useful sort and to provide statistical analyses of the services rendered by the institutions. Apparently, the Barnes Hospital first had machine-produced indexes in about 1947.

The use of a listing as an index, as described by the Barnes group, preceded ours by several years, although our development of this type of index was independent of theirs. So far as I know, Doctor Vermillion has not seen our index—it has not been published—so I am not quite sure how he can claim his is more extensive than ours. Our index ("diagnostic file" as he calls it) is assembled every six months. We index up to eight diagnoses and seven operations on each discharged patient, and by machine methods print our index in such a way that one need only refer to one place in the medical record room index to find all cases of the particular diagnosis, whether it was a primary or secondary diagnosis, rather than in four places as is the case at the Barnes Hospital. From our index can also be read directly the discharge date, length of stay, age, sex, race, condition of the patient on discharge, whether or not an autopsy was performed, the attending physician, the operating surgeon, the anesthetist, the type of anesthesia, the pathologist's decision as to the presence or absence of disease in the tissue submitted, the type and number of x-ray and laboratory examinations, the number of blood transfusions, data on transfusion reactions, type of radiation therapy if employed, the admission hemoglobin value in grams, the numbers of consultations and complications, who paid the bill, and a coded record of the data pertaining to special studies which may be in progress. This appears to be considerably more extensive than the index illustrated in *The Modern Hospital.*

So much for the application of punched cards to medical record room indexes and routine statistical analyses.

The Southwestern Michigan undertaking is unusual in that there are fifteen hospitals voluntarily pooling statistical data on their professional activities in a combined effort of medical staffs and hospitals to measure the

(Continued on Page 1160)

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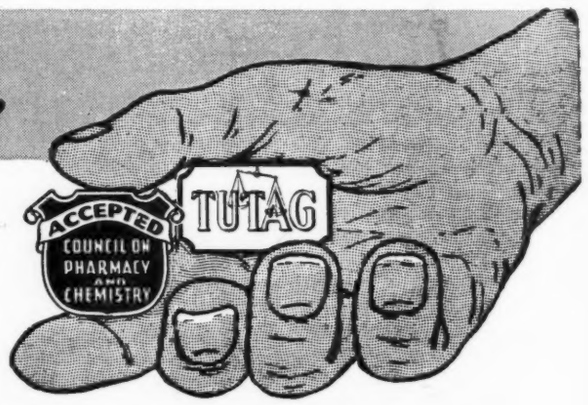

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Wine to Brighten the Monotonous Diet—In the dull and often unappealing dietary regimen of many patients, a glass of wine can frequently provide a touch of interest and "elegance"—a psychological boost of inestimable value.

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*Research information on wine is available upon request.

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(Continued from Page 1158)

effectiveness of the medical care supplied. The study is designed to compare the medical practice of each hospital and its physicians with that of other hospitals and other physicians. Our primary aim has been the perfection of a medical tool. The administrative values to the hospital of mechanization have proved very important, but are still, in our minds, secondary.

The development at Barnes Hospital has been for internal use, as have been those others with which we are familiar, except that in the Rochester, New York, Hospital Council. In the March 15, 1934, issue of the *Journal-Lancet* (Vol. 54, pages 148-156) Halbert L. Dunn, M.D., now Chief of the National Office of Vital Statistics proposed the establishment of a ". . . . Minnesota Hospital Statistical Bureau" which could, using punch card methods, provide a clearing house for medical and administrative data for the hospitals of Minnesota. I do not believe this was ever actually established.

Our study started in 1950 as a copy of the Rochester study. The introduction of machine methods in 1952, with the patient rather than the hospital as the basic unit, made possible a tremendous variety of comparisons with a great deal more value. Already some of the studies have produced truly useful information for our staffs, in spite of the fact that refinements in method have demanded a great deal of attention. Now the methods are well enough worked out that much more attention can be devoted to studying the data.

In 1953 our fourteen hospitals in Southwestern Michigan were, in effect, a 1000 (adult) bed general hospital with 42,000 adult and 8,000 newborn discharges in which to study medicine and make comparisons between the care of patients in various hospitals and under various physicians. This year, with fifteen hospitals, we will

(Continued on Page 1162)

Say you saw it in the Journal of the Michigan State Medical Society

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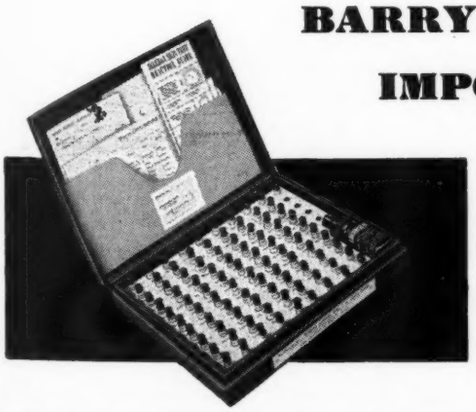

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(Continued from Page 1160)

have about 1,300 adult beds with 65,000 adult and 12,000 newborn discharges. The physician in the smallest hospital is no longer isolated and can profit by the experience of all. For example, the 1953 primary appendectomy series, which is now under intensive study, numbers about 1400 cases—a sizable number.

The possibilities have so impressed the medical staffs that we believe "another Michigan first" has occurred and is being reported among the news items of THE JOURNAL OF THE MICHIGAN STATE MEDICAL SOCIETY. I refer to the establishment of an association of the Chiefs of Staff of the participating hospitals. Periodic meetings are scheduled, and plans are under way to utilize the statistical data on the various hospitals in setting up programs for meetings of the consolidated staffs of the fifteen hospitals.

This group of hospitals is also carrying out a pilot run of a promising, simple method of doing a medical audit. This is being developed by the American College of Surgeons and the Professional Activity Study in an effort to find a method by which it will be feasible for a medical staff to conduct its own medical audit. Community Health Center of Branch County, Coldwater, Michigan, and Pennock Hospital, Hastings, Michigan, are already at work with several other hospitals scheduled to start at an early date.

The Southwestern Michigan activity, which is aimed toward the study of medical care so that our staffs can tell how they are doing and, as a result, practice better medicine, does not seem to us to be in any sense a project competitive with that described by the Barnes group, and we are sure that many of their methods can be used to improve our project.

Sincerely,

VERGIL N. SLEE, M.D., *Director*

Hastings, Michigan
August 31, 1954

L. W. Hull, M.D., President
Michigan State Medical Society
Lansing 15, Michigan

Dear Dr. Hull:

Thanks for all the kind expressions related in your letter of August 9, concerning our contributions to the fine work the medical profession of Michigan did in establishing the Beaumont Memorial.

It was a real pleasure for Parke, Davis & Company to support this worthwhile movement which resulted in a memorial to a great doctor.

Please extend our sincere thanks to the Michigan State Medical Society for affording us this privilege.

Sincerely,

H. J. LOYND
President
Parke, Davis & Co.

Detroit, Michigan
August 18, 1954

* * *

Gentlemen:

Recently we received a reprint entitled "Preventive Geriatrics" through the regional office of the United States Public Health Service which was prepared under the supervision of the Geriatrics Committee of your Society.

We found this to be most interesting and an excellent compilation of current information in this field and felt that our own State Medical Association Committee members would gain by having a copy of the reprint. Could you supply us with twelve copies for such distribution? Any consideration will be greatly appreciated.

Sincerely yours,

WENDELL C. ANDERSON, M.D., *Director,*
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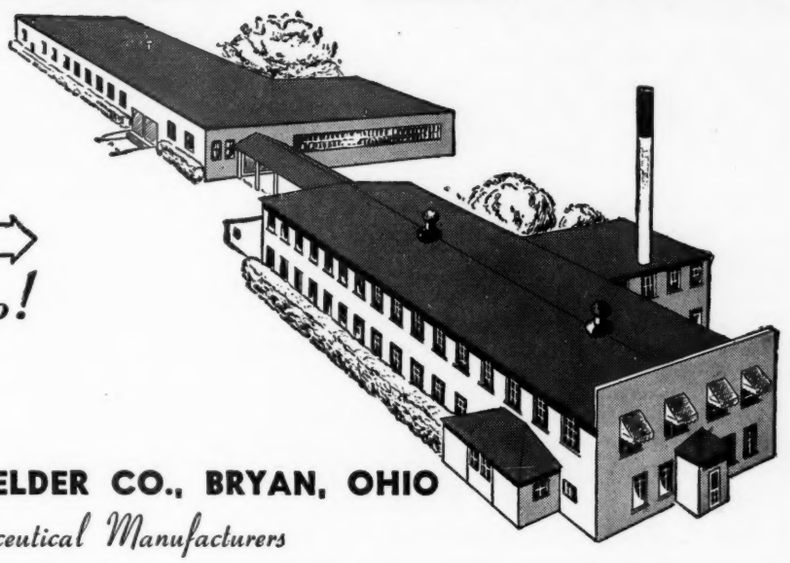

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MICHIGAN AUTHORS

Frank H. Top, M.D., Iowa City, Iowa, formerly of Detroit, is the author of an article entitled "Factors in the Causation of Recognizable Poliomyelitis," published in the *Journal of the Iowa State Medical Society,* August, 1954.

William B. Bass, Ph.D., L. A. Schroeder, and **M. J. Vander Brook, Ph.D.,** Kalamazoo, Department of Pharmacology, The Upjohn Company, are the authors of an article entitled "Bis-(B-(o-methoxyphenyl) isopropyl)-amine, Pharmacologic Studies of a New Local Anesthetic" published in *Current Researches in Anesthesia and Analgesia,* July-August, 1954.

David H. P. Streeten, M.B., Ph.D., M.R.C.P., Ann Arbor, is the author of an article entitled "Control of the Balance and Distribution of Body Water" published in the *University of Michigan Medical Bulletin,* July, 1954.

Leland T. Henry, Class of 1956, School of Medicine, Ann Arbor, is the author of an article entitled "The Development of Blood Transfusion," published in the *University of Michigan Medical Bulletin,* July, 1954.

Carey P. McCord, M.D., Ann Arbor, is the author of "Lead and Lead Poisoning in Early America," from The Institute of Industrial Health, University of Michigan Medical Center, Ann Arbor, Michigan.

A. D. Moore, Ann Arbor, Professor of Electrical Engineering, University of Michigan, is the author of an article entitled "Future of the Sanitary Landfill" read before the Second National Conference on Trichinosis, Chicago, March 1, 1954, and published in the *Journal of the American Medical Association,* August 14, 1954.

E. H. Watson, M.D. J. L. Wilson, M.D., and **Arthur Tuuri, M.D.,** Ann Arbor, are authors of an article "Diaper Care in Nursuries" which appeared under *Clinical Notes* in JAMA of August 28.

* * *

Membership in your Chamber of Commerce is useful to your profession, Doctor. Your Chamber of Commerce helps all business in your city by attracting new industry—and that includes the business of medicine. More importantly, Chamber of Commerce membership gives you an opportunity to share in the work being done to better your community.

* * *

Arthur K. Hamp, M.D., Grand Rapids, representing the Michigan Cancer Co-ordinating Committee, addressed the Northern Michigan Medical Society in Petoskey September 9 on "Diagnosis and Treatment of Leukemias and Lymphomas."

* * *

Richard A. Rasmussen, M.D., Grand Rapids, representing the Michigan Cancer Co-ordinating Committee, addressed the Ionia-Montcalm Medical Society at Belding on August 24. His subject was "Diagnosis and Treatment of Intermediate Pulmonary Lesions."

* * *

A conference on rheumatic diseases, sponsored by the Cleveland Chapter of the Arthritis and Rheumatism Foundation and the Regional Members of the American Rheumatism Association, will be held at the Carter Hotel, Cleveland, November 10, 9:00 a.m. to 5:00 p.m., followed by a banquet. Registration fee $10.00. For program and additional information, write William S. Clark, M.D., Chairman, 2073 Abington Road, Cleveland 6, Ohio.

* * *

The American College of Surgeons will hold its 40th Clinical Session in Atlantic City, New Jersey, November 15-19. For program and information write the College at 40 E. Erie Street, Chicago 10, Illinois.

* * *

The American Urological Association offers an annual reward of $1,000 (in three prizes) for essays on the result of some clinical or laboratory research in urology. Competition is limited to urologists who have been graduated not more than ten years and to men in training to become urologists. For full particulars, write William P. Didusch, Executive Secretary, 1112 North Charles Street, Baltimore 1, Maryland.

* * *

A new cap has been developed and made available, as of October 1, 1955, to members of the Michigan Practical Nurses Association. The cap has been design-copy-writed by the Association.

* * *

"The Advantages of Private Medical Care" is the subject of the national essay contest of the Association of American Physicians and Surgeons, Inc. The contest is for high school students, with six prizes, the first of $1,000 and the second, $500.

* * *

LeMoyne Snyder, M.D., Lansing, author of "Homicide Investigation" and former medical legal director of the Michigan State Police, was profiled in the September issue of *Argosy* magazine in "Dead Men Do Tell Tales," a feature written by Harry Steeger, publisher of the magazine.

* * *

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(Continued on Page 1166)

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The Michigan Alcoholic Rehabilitation Foundation is a non-profit organization devoted to the proper hospitalization of alcoholics seeking to stop drinking.

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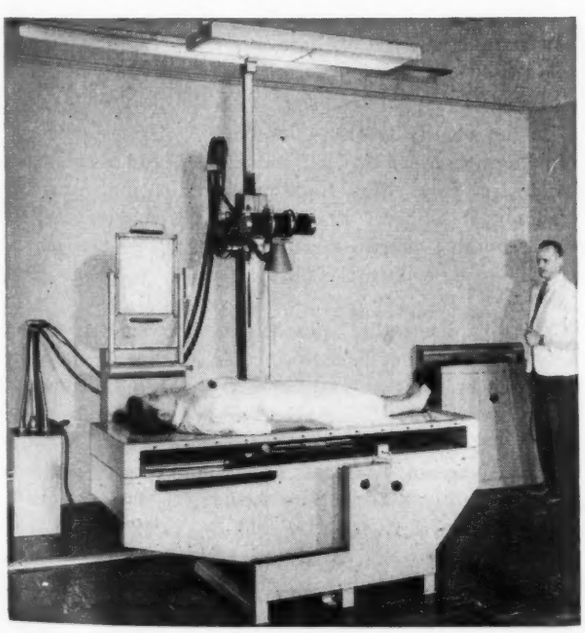

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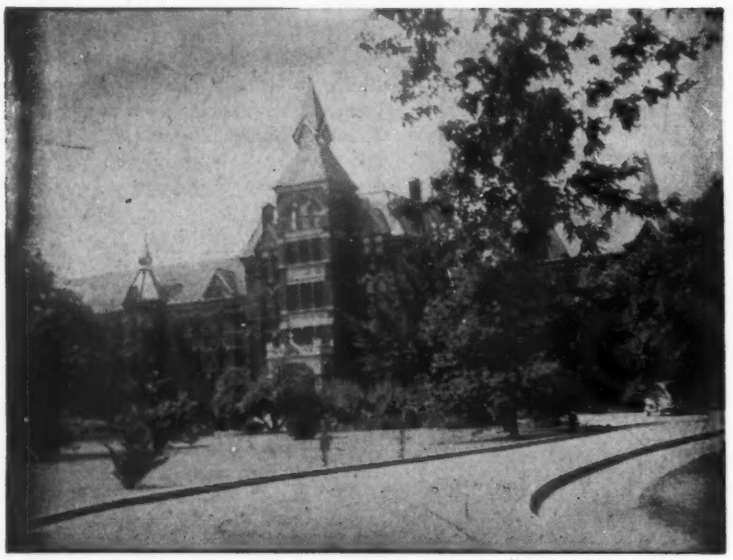

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(Continued from Page 1164)

imately $60,000,000 a year for research according to John A. MacCartney of Parke, Davis & Company of Detroit, who is first vice president of the American Pharmaceutical Association.

* * *

The New York Academy of Medicine's twenty-seventh graduate fortnight will be held October 18-29, 1954, on "Infections and Their Management." For program and information, write the Academy at 2 East 103rd Street, New York City.

* * *

Age 65: The number of men and women in the United States now reaching the age of 65 has increased to well over 1,000,000 a year, compared to three-quarters of a million a generation ago, according to the Institute of Life Insurance. Many of those reaching age 65 in 1954 will or must retire from their jobs. Many observers question the custom of making 65 a compulsory age for retirement; they argue that each person should be kept on in employment as long as he wants and as long as his health and capabilities permit.

* * *

"Nothing has happened in the last two years to slow up or reverse the federal government's trend toward providing for the welfare of individual citizens—and if the movement continues, private insurance is on the 'way out,' " according to A. L. Kirkpatrick, insurance manager of the Insurance Department of the Chamber of Commerce of United States. He outlined three "definite steps" toward "more and more" Federal responsibility and control over the lives, health and welfare of the individual citizen. They were: (a) higher and new kinds of benefits under Social Security, (b) federal health re-insurance, (c) expansion of federal aid in controls over state and local welfare activities.

—*Journal of Commerce,* May 18, 1954

* * *

"Is the Family Doctor Obsolete?", an interesting and revealing article by David Landman, appeared in *Cosmopolitan* of July. Mr. Landman credits the American Academy of General Practice and the medical schools for a favorable change in attitude toward general practitioners—made within the last five years.

* * *

"Are We Expecting Too Much, Too Soon from the New Polio Vaccine?" was an article in *Parents* magazine (July, 1954) by Ruth and Edward Brecher—an interesting article which is being read widely by patients.

* * *

The American Medical Education Foundation was notified recently that the late Arthur B. McGraw, M.D., of Detroit had bequeated $5,000 to AMEF in his will, which was probated at Detroit September 13, 1954. This was the first such legacy awarded AMEF since its inception in 1951.

* * *

William M. LeFevre, M.D., of Muskegon, has been appointed governor for the State of Michigan of the American Diabetes Association which recently established a

Board of Governors. The Governors of the American Diabetes Association have the responsibility of stimulating statewide interest in diabetes and related conditions as well as facilitating co-ordination of such activities.

* * *

Professional Activities Study.—On Tuesday, August 24, a meeting was held of the Chiefs of Staff of the hospitals participating in the Professional Activity Study of the Southwestern Michigan Hospital Council in Galesburg. Members of the group are: Allegan Health Center, Harry Schneiter, M.D.; Battle Creek Sanitarium, James R. Jeffrey, M.D.; Blodgett Memorial Hospital (Grand Rapids), Luther C. Carpenter, M.D.; Community Health Center (Coldwater), Dean T. Culver, M.D.; Community Hospital (Battle Creek), Fred J. Melges, M.D.; Hillsdale Community Health Center, A. W. Strom, M.D.; Holland City Hospital, M. H. Hamelink, M.D.; Mercy Hospital (Benton Harbor), J. Griswold Ruth, M.D. (absent); Oaklawn Hospital (Marshall), Herman Beuker, M.D. (absent); Pawating Hospital (Niles), Robert Landgraf, M.D.; Pennock Hospital (Hastings), H. S. Wedel, M.D.; Sheldon Memorial Hospital (Albion), Clifford B. Taylor, M.D. (absent); South Haven Hospital, Edwin Terwilliger, M.D.; Three Rivers Hospital, R. D. Zimont, M.D., and William Crispe Hospital (Plainwell), Lewis F. Brown, M.D.

Purpose of the meeting was to discuss some of the information compiled on the practice of medicine in the participating hospitals. By general agreement, an informal association of Chiefs of Staff of these hospitals was formed. Luther C. Carpenter, M.D., was elected chairman, and an executive committee consisting of Dean T. Culver, M.D., A. W. Strom, M.D., and R. D. Zimont, M.D., was appointed.

Purpose of the association is to devise ways and means of taking advantage of the information on medicine and on medical care made available to these hospitals by their participation in the Professional Activity Study. The group will meet at two to three month intervals and will from time to time be expanded to include the entire staff memberships of the fifteen hospitals.

* * *

A record graduation of 6,861 physicians during the past year by our nation's medical schools has boosted the ratio to an all-time high of one physician for every 730 persons in the United States. This ratio will be lowered even more in the next few years as the number of medical graduates is expected to rise due to the continued expansion of the country's medical schools.

Today's physician population has now reached approximately 220,100. The record graduation figures were released in the fifty-fourth annual report on medical education in the United States by the American Medical Association's Council on Medical Education and Hospitals.

Highlights of the report are: (a) enrollment of 28,227 is largest number of medical students in history of U. S., (b) freshman class enrollment of 7,449 also is a record; (c) more than 76 million dollars was spent during 1953-1954 for new facilities, remodeling or completion of buildings for medical instruction; (d) budgets for medi-

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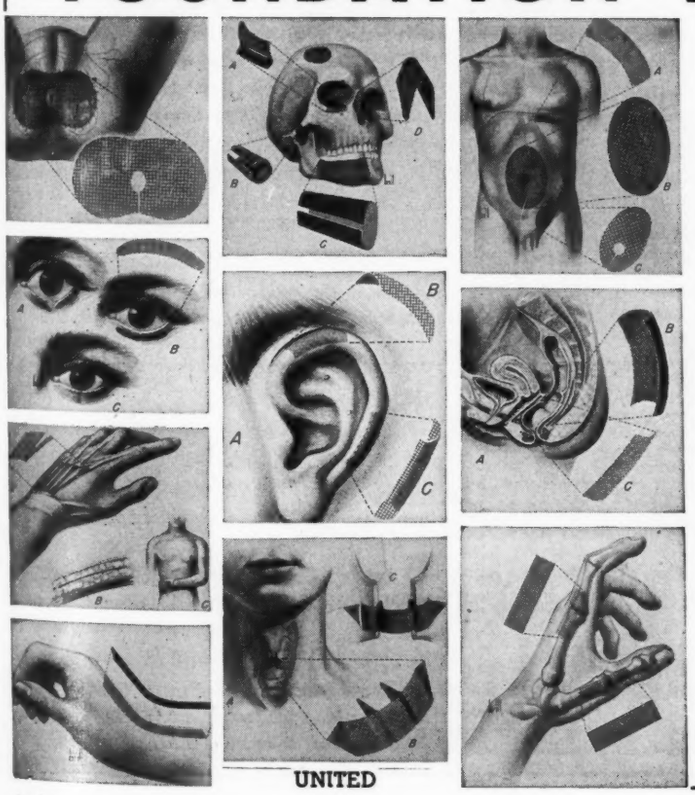

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cal schools during 1954-1955 total more than 143 million dollars; (e) 21,328 physicians did volunteer teaching without pay during the year; (f) ten new four-year schools are in construction or planning stages and will be in operation within the next few years.

The ten new four-year medical schools will be at the Universities of California, Mississippi, Miami, Missouri, Florida, West Virginia, Kentucky, North Dakota, and Yeshiva University of New York and Seton Hall University. In addition, three other medical schools are being considered.—AMA News Notes, September, 1954.

* * *

Army taking 100 physicians, first in 16 months: Defense Department has asked Selective Service to call up 550 physicians under the doctor draft for assignments in December. One hundred are scheduled to go to the Army, the first draft since August, 1953. Defense said the Air Force requires 200 and the Navy, 250 physicians. The Department also requested 150 dentists, all for the Air Force.

* * *

It was good news to read George Meany's announcement that the AFL had dismissed Frank Edwards, its $35,000-a-year radio news commentator. Meany, who is president of the AFL, said the cause was Edwards oversalting the news with opinion and failing to keep news and opinion separate.

It certainly is no exaggeration to say that Edwards has been the American Medical Association's worst critic. He went to great pains to malign the AMA and distort the facts in many of his weekly broadcasts.

His place, Mr. Meany said, has been taken by Harry Flannery, former radio commentator, who is on the AFL's staff in Washington where the union's broadcasts originate.—AMA Secretary's Letter.

* * *

Gov. James F. Byrnes, speaking at a meeting of the South Carolina Medical Association said "Doctors must answer the misrepresentations of their critics. And the doctors of the state cannot hold themselves aloof from the life of the community and the state. They must, like all other citizens, take an interest in city, county, and state governments. They have great power and influence, and they should exercise it for their own good and the good of the people."—AMA Secretary's Letter.

* * *

"To Your Good Health" is the title of a new health column which is being distributed through Newspaper Feature Syndicate, Inc. The column which will discuss diseases and treatment in simple, lay language, is the "brain-child" of Dr. Joseph G. Molner, health commissioner of the City of Detroit. The column, he tells us, will certainly reflect the best thinking and policies of the medical profession. Dr. Molner is one of the outstanding health commissioners in the United States and there is every reason to believe that his new writing venture will catch on. The first newspaper to carry it is the *Pittsburgh Post Gazette.*

* * *

The Wayne University College of Medicine has established a new Bulletin to be published quarterly, and two numbers have been issued. The first number dated March,

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1950 *Bargen* reports that since 1949 approximately 100 patients have been treated with Azulfidine. "The results have been extremely satisfactory in most cases."
Personal communication (Apr. 12, 1950)

1951 Of 119 patients treated with Azulfidine prior to 1944, 90 patients (75%) were symptom-free or considerably improved when re-examined in 1949.
Svartz, N.: Acta. Med. Scandinav. 141:172, 1951.

1952 In a series of 52 patients with chronic ulcerative colitis 30, or 58%, showed significant improvement after treatment with Azulfidine.
Morrison, L. M.: Gastroenterology 21:133, 1952.

1953 *Morrison says:* "Azopyrine [Azulfidine] . . . has been effective in controlling the disease in approximately two-thirds of patients who had previously failed to respond to standard colitis therapy currently in use."
Morrison, L. M.: Rev. Gastroenterology 20:744 (Oct.) 1953.

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1954, was 36 pages with an enamel paper cover showing a beaker and suture with forceps in relief. There were numerous articles of interest to the school and its graduates, including the Michigan's Young Man of the Year, George N. Petroff, M.D., of Pontiac, with a picture of his family.

Bulletin number two came in August with a date line of June. It contains 48 pages, an article by Joseph G. Molner, M.D., Health Commissioner, on "Operations Health," with a picture and a distinguished service citation from the Alumni Association. There were reports of the dedication of the new Medical Science Building, and the 68th Annual Clinic Day.

Michigan's foremost family physician, William J. Stapleton, Jr., M.D., was featured with pictures and a reproduction of the Scroll given by the Michigan State Medical Society. There was a picture of Robert L. Novy, M.D., and mention of his many honors featured in THE JOURNAL of the Michigan State Medical Society, his Board of Health, service, et cetera.

One page has pictures of four persons who received honorary membership in the Alumni Association of the Wayne University College of Medicine: Harry L. Loynd, M.D., president, Parke, Davis & Company; Dr. Gordon H. Scott, dean; William Burns, LL.B., executive director of the Michigan State Medical Society; and L. Fernald Foster, M.D., medical secretary of the Michigan State Medical Society. A page each was devoted to the citations for distinguished service to Wilfrid Haughey, M.D., and Osborne A. Brines, M.D.

Nine members of the Class of 1904 were present and pictured in a group.

The Bulletin sets a high standard in its first two numbers.

* * *

The Nineteenth Annual Convention of the National Gastroenterological Association and the First Annual Convention of the American College of Gastroenterology will be held at The Shoreham in Washington, D. C., on October 25, 26 and 27, 1954. In addition to several interesting individual papers on gastroenterology and allied fields, the program will include a panel discussion on "Twenty-Five Years' Observation of the Gallbladder Controversy"; a panel discussion on "Amebiasis" by members of the staff of the National Institutes of Health, Bethesda, Maryland, and a symposium on "Esophageal Varices."

The Sixth Annual course in Postgraduate Gastroenterology, under the personal direction of Dr. Owen H. Wangensteen of Minneapolis, Minnesota, and Dr. I. Snapper of Brooklyn, New York, will be given on October 28, 29 and 30, 1954, at The Shoreham and Walter Reed Army Hospital. Participating in giving the Course will be a distinguished faculty from the various medical schools and the staff of Walter Reed Army Hospital.

This will be the last convention of the National Gastroenterological Association whose Fellowship have voted to become the American College of Gastroenterology. The scientific sessions on October 25, 26 and 27 are open to all physicians without charge. The Post-

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graduate Course will only be open to those who have matriculated in advance. Copies of the program and further information concerning the Postgraduate Course may be obtained by writing to: National Gastroenterological Association, 33 West 60th Street, New York 23, New York.

* * *

The Eighth Annual Fall Postgraduate Clinic of the Michigan Academy of General Practice will be held at the Sheraton-Cadillac Hotel in Detroit, November 10-11, 1954. There will be seventeen scientific papers read, and many scientific exhibits, all shown in Michigan for the first time, and all but two built expressly for this Post-Graduate Clinic. There will also be some forty-two technical exhibitors.

* * *

The Fourth Annual Meeting of state chairmen of the American Medical Education Foundation will be held at the Sheraton Hotel in Chicago on Sunday, January 23, 1955. Specific details regarding the proposed program and reservation forms for accommodations at the Sheraton Hotel will be distributed with the November Bulletin to AMEF state chairmen and regional auxiliary chairmen.

* * *

The Michigan Diabetes Society's panel discussion of September 29, held in Detroit during the MSMS annual session, included Frank Perkins, M.D., Detroit, as moderator, with the following participants: Jerome W. Conn, M.D., Ann Arbor; Richard M. McKean, M.D., Detroit, and Lawrence F. Segar, M.D., Detroit.

MEDICAL TELEVISION SHOWS OVER WJBK-TV

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Date	*Subject*	*Guests*
Aug. 8	Mental Health	Thomas A. Petty, M.D., Detroit Max Warren, M.D., Detroit
Aug. 15	Healthy Michigan	Willard Shepard, Lansing, Michigan Department Health Frank A. Karoly, Lansing, Michigan, Tourist Council
Aug. 22	Health Aspects of Civil Defense	C. P. Anderson, M.D., Detroit John E. Griffin, Lansing, Michigan, Civil Defense
Aug. 29	Nursing—A Professional Career	Virginia M. Null, R.N., Ann Arbor Elizabeth Moran, R.N., Detroit

FRANK C. WITTER

(Continued from Page 1154)

land Park General Hospital, a life-size portrait was commissioned and now hangs in the lobby of the Hospital.

Dr. Witter was a charter member of the American College of Surgeons and a member of the Founders Group of the American Board of Surgery. He was a past President of both the Detroit Academy of Surgery and the Detroit Obstetrical and Gynecological Society.

Dr. Witter is survived by his widow, Lena; his son, and a daughter, Mrs. Dorothy Redmond, of Birmingham.

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The CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE should be a MUST on the calendar of every physician. Plan now to attend and make your reservation at the Palmer House.

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Acknowledgment of all books received will be made in this column, and this will be deemed by us as full compensation to those sending them. A selection will be made for review, as expedient.

CORONARY HEART DISEASE IN YOUNG ADULTS. A Multidisciplinary Study by Menard M. Gertler, M.D., and Paul D. White, M.D., with the aid, advice, and editorial assistance of E. F. Bland, M.D., J. Fertig, Ph.D., S. M. Garn, Ph.D., J. Lerman, M.D., S. A. Levine, M.D., H. B. Sprague, M.D., and N. C. Turner, M.Sc. Published for the Commonwealth Fund at Cambridge, Massachusetts. Harvard University Press, 1954. Price $5.00.

This monograph is the study of coronary disease in 100 patients below the age of forty years. The study took over eight years to complete and is called a multidisciplinary study. Many facets of the problem are explored and although not conclusive, are speculative. Exhaustive and abundant study has gone into this project and established facts are reaffirmed and new conjecture throws light upon a perplexing problem.

The study was well controlled and covers the clinical appraisal, the role of heredity and race, anthropometric, occupation, endocrine and biochemical appraisals including the role of uric acid, cholesterol and phospholipids and the role they possibly play in coronary disease.

This monograph offers information which might make it possible to predict or prognosticate important implications.

The book provides important information which will be of great importance to the cardiologist, general practitioners, internists, field of public health, industrial medicine and life insurance.

V. B. L.

French's INDEX OF DIFFERENTIAL DIAGNOSIS. Edited by Arthur H. Douthwaite, M.D., F.R.C.P., Senior Physician, Guy's Hospital; Honorary Physician, All Saints' Hospital for the Genito-urinary Diseases. Seventh Edition. 731 illus. (200 in color). Baltimore: The Williams and Wilkins Company, 1954.

The new edition of the familiar French's Differential Diagnosis is now titled "Index of Differential Diagnosis," edited by A. H. Douthwaite, and is for the most part a rewritten text in which the symptoms are, as before, listed in alphabetical order to facilitate quick reference. Much obsolete material has been deleted and much new material added making it a much more concise volume than previous editions. The book is well supplied with charts, colored plates and illustrations enhancing its value and practical application.

Detail is adequate, yet it is not overburdened with extraneous material. It covers the entire field of medicine, surgery, gynecology, ophthalmology, dermatology and neurology. It should serve as a readily accessible reminder of the pathological significance of symptoms as they are presented each day to the busy physician.

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the entire field of differential diagnosis without criticism in one or another instance but the Index of Differential Diagnosis comes reasonably close to attaining that goal.

In the opinion of the reviewer this book would be a worthy addition to each hospital library for quick reference for the resident and interne staffs. Practitioners also might find it valuable in the office for the assurance to think of all the possible diseases to be considered in the patient with the obscure or even the common symptom combinations. On the other hand, this volume should not be the only reference material studied for the difficult diagnostic problem.

G.A.Z.

PARKINSONISM AND ITS TREATMENT. Edited by Lewis J. Doshay, M.D., M.A., Ph.D. Philadelphia, London, Montreal: J. B. Lippincott Company. Price $3.00.

This pocket-size monograph is a timely and welcome addition dealing with a disease entity which will become even more important in our aging population.

The text brings to the physician a small, compact discussion of the problem of parkinsonism. Contributions are made by leading anatomists, neuro-surgeons, neurologists regarding the anatomic and pathologic physiology considerations as well as etiologic factors.

The text is excellent in its discussion of drug therapy, which makes it of utmost value to the busy practitioner. The most recent drugs which have been added to the armamentarium of the physician are included as well as their specific action and drug combinations in the therapy of this neurologic affliction.

The surgical aspects, the role of physical medicine, and psychotherapeutic facets are also included.

The text is well indexed, concise, compact, and well illustrated. This book can be highly recommended for medical students, neurologists, general practitioners and internists.

V. B. L.

GLANDULAR PHYSIOLOGY AND THERAPY. Prepared under the auspices of the Council on Pharmacy and Chemistry of the AMA. Fifth Edition, completely revised and rewritten. Philadelphia, London, Montreal: J. B. Lippincott Company. Price $10.00.

This book represents the contributions of thirty-one leading physiologists and endocrinologists covering the field of endocrinology in a concise manner. The text is the epitome of endocrine physiology, endocrine derangement and their therapy by leading endocrine investigators. The text is completely devoid of clinical pictures, supplemented by excellent tables and figures. Concise, it covers the field of the endocrines and is easy reading.

The bibliography is voluminous, spanning the recent and not-so-recent literature.

Emphasis is placed on therapy preceded by anatomic and physiologic considerations and proceeding into endocrine derangement which leads to better understanding of the principles of treatment.

This text is comprehensive and contains the most recent advances in the field. The text goes beyond the

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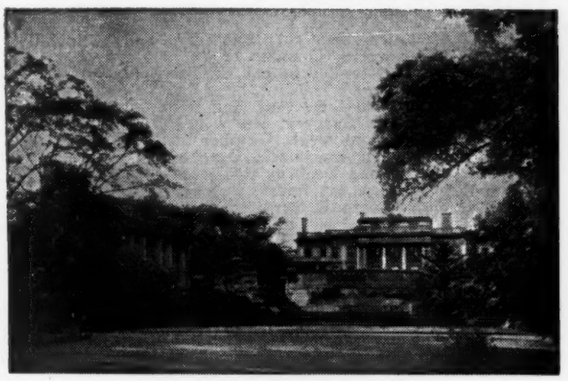

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field of pure endocrinology and includes the use of endocrines in neoplastic diseases. The book includes a chapter on abnormalities in sexual behavior and the use of adrenal steroids and corticotropin in non-endocrine conditions. The common misconceptions of endocrine therapy are well covered as well as diagnosis and the biochemistry of hormones.

This text can be recommended for the internist, general practitioner and obstetrician and gynecologist.

V. B. L.

RESEARCH PROJECTS

The National Institute of Health of the Public Health Service of the U. S. Department of Health, Education and Welfare has released the following report:

Stomach Absorption and Secretion

The stomach plays a more important role in the absorption and secretion of drugs than has heretofore been known, according to a study reported by scientists of the National Heart Institute of the Public Health Service, Department of Health, Education and Welfare.

The structure of the membrane of the stomach, how it acts and what makes it permeable to various drugs, is now much clearer as a result of studies conducted by Parkhurst A. Shore, C. Adrian M. Hogben and Bernard M. Brodie of the Heart Institute. Their work is reported recently at the Society for Pharmacology and Experimental Therapeutics, meeting in Charlottesville, Virginia.

In these studies, the stomach membrane is pictured as an oily barrier between gastric juice and blood plasma. Drugs may pass both ways through this membrane barrier. Alkaline drugs pass the barrier in the direction of the stomach and acid drugs pass the barrier in the direction of the blood stream.

Even when administered directly into the blood stream, alkaline drugs such as quinine and other alkaloids are found quickly and in surprisingly high concentrations in gastric juices of the stomach but are not absorbed well from the stomach. Acid drugs such as the barbiturates and aspirin are absorbed rapidly from the stomach but are not secreted to any great extent.

In between these acids and alkaloids are the neutral drugs, compounds which are intermediate. They are absorbed moderately from the stomach into the blood stream and secrete themselves moderately into the stomach.

In this study, different drugs which are representative of their class are being investigated, from strong alkaloids, to neutral compounds, and the acids. The rat stomach is separated from the rest of the gastrointestinal tract, a tube is inserted, and the drug in solution is introduced and allowed to stand a prescribed time. From 0 to 80 per cent of the drug is absorbed in one hour, depending on the physical characteristics of the drug.

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INTENSIVE POSTGRADUATE COURSES
STARTING DATES

SURGERY—Surgical Technic, two weeks, October 11, November 8
Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, October 11
Surgical Anatomy and Clinical Surgery, two weeks, October 25
Surgery of Colon and Rectum, one week, October 25
Breast and Thyroid Surgery, one week, October 25
Thoracic Surgery, one week, October 11
Esophageal Surgery, one week, October 4
General Surgery, one week or two weeks, October 4
Gallbladder Surgery, ten hours, October 25
Fractures and Traumatic Surgery, two weeks, October 25
GYNECOLOGY—Office and Operative Gynecology, two weeks, October 18
Vaginal Approach to Pelvic Surgery, one week, November 1
OBSTETRICS—General and Surgical Obstetrics, two weeks, November 1
MEDICINE—Electrocardiography and Heart Disease, two weeks, October 11
Gastroenterology, two weeks, October 25
Gastroscopy, two weeks, November 8
RADIOLOGY—Diagnostic Course, two weeks, October 4
Clinical Uses of Radio Isotopes, two weeks, October 4
PEDIATRICS—Clinical Course, two weeks, by appointment
Congenital and Rheumatic Heart Disease in Infants and Children, one week, October 11 and October 18; two weeks, October 11
DERMATOLOGY—Intensive Course, two weeks, October 18
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